

ARE SUSTAINABLE LIVELIHOODS CRITICAL TO THE SUCCESS OF COMMUNITY-BASED  
MARINE PROTECTED AREAS?

By

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## **Abstract**

Three community-based marine protected areas (CBMPAs) in the Visayas, Philippines were analyzed based on how well they incorporated sustainable livelihood programs into their overall management and planning for those displaced by the CBMPA. Through reviewing management plans and reports, the CBMPAs were then assessed to see whether including alternative livelihoods in these three cases was correlated with greater overall success. Each CBMPA was scored based on their alternative livelihoods and overall success. Management stakeholder perception surveys were also conducted for two of the CBMPA sites studied. Apo Island Marine Reserve scored the highest for its criteria for sustainable livelihood development and criteria for success of a CBMPA. Alternatively, Lawi Marine Reserve scored equivalent to that of Balcon Marine Protected Area for its criteria for sustainable livelihood development, yet the lowest for its criteria for success of a CBMPA. The most successful CBMPA was Apo Island Marine Reserve due to the incorporation of human dimensions into their management planning that helped them create sustainable livelihood programs that increased the community's compliance with the rules and regulations of the CBMPA. In contrast, Balcon Marine Protected Area and Lawi Marine Reserve did not have sustainable livelihood programs in place and their success was far below that of Apo Island. Thus, the overall success of these CBMPAs appears to be strongly correlated with alternative livelihood programs, however further study is needed to determine if this correlation between alternative livelihoods and success is true for the majority of CBMPAs in the Philippines.

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### **List of Acronyms**

**BFAR** – Bureau of Fisheries and Aquatic Resources  
**BFARMC** – Barangay Fisheries and Aquatic Resources Management Council  
**CBMPA** – Community Based Marine Protected Area  
**CRM** – Coastal Resource Management  
**DENR** – Department of Environment and Natural Resource  
**FA** – Fisherfolk Association  
**GENRO** – Guimaras Environment and Natural Resources Office  
**ICM** – Integrated Coastal Management  
**IEC** – Information, Education and Communication  
**LGU** – Local Government Unit  
**LGA** – Local Government Agency  
**MAO** – Municipal Agriculture Office  
**MEAT** – Management Effectiveness Assessment Tool  
**METT** – Management Effectiveness Tracking Tool  
**MFARMC** – Municipal Fisheries and Aquatic Resources Management Council  
**MMC** – Marine Management Council  
**MMRMB** – Municipal Marine Reserve Management Board  
**MPA** – Marine Protected Area  
**NGO** – Non-Government Organization  
**PAMB** – Protected Area Management Board  
**PCRA** – Participatory Coastal Resource Assessment  
**PENRO** – Provincial Environment and Natural Resources Office  
**PO** – People’s Organization  
**PRDP** – Philippines Rural Development Program  
**USAID** – United States Agency for International Development  
**SB** – Sangguinang Bayan  
**SLA** – Sustainable Livelihoods Approach

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## **Chapter 1. Introduction**

*“The livelihoods and traditions of my people here are connected to the sea.” – Leonidas Tan,  
Fisheries Technician for the Municipality of Jordan, Guimaras.*

### **1.1 The Problem**

Coastal ecosystems provide ecosystem goods and services to millions of people around the world. The long-term sustainability of these resources is currently being threatened by overfishing, destructive fishing practices, water pollution and climate change. In response, the Philippines has established marine protected areas (MPAs) to protect biodiversity and to ensure the sustainable use of resources. Many of these MPAs are small-scale and locally managed. These are referred to as “community-based marine protected areas” (CBMPAs) that have two primary goals: to protect coral reefs and to improve local livelihoods (Christie et al. 2002).

To meet the first goal of protecting coral reefs, CBMPAs have restricted most or all fishing within the area, but unfortunately, they have not paid sufficient attention to the second goal of improving local livelihoods. Fisherfolk are denied the right to fish in their traditional fishing grounds and are left with virtually no way to make a living. As a result, some CBMPAs, at least in the short term, may be considered a biological success while simultaneously causing economic and social harm. It is not surprising that local communities either strongly resist the implementation of the MPA or initially support the MPA but then lose interest (Christie 2004). If CBMPAs are going to reach their potential, sustainable livelihoods as well as biological factors must be considered in their planning and management.

### **1.2 Need for the Study**

Much of the CBMPA literature concentrates on practices that should be put in place for effective marine conservation and improvement of livelihoods. For example, Christie and White (2007) suggest design principles for long-enduring MPA management must include conflict resolution mechanisms, nested enterprises, and alternative livelihoods. However, there is much less research on the potential social, economic, political and cultural impacts of the establishment of CBMPAs. In addition, information surrounding a community’s human dimensions and alternative livelihoods has generally been left out of the management planning process, partly because little information is available to stakeholders involved

in the management of CBMPAs on how to write plans and ordinances that include sustainable livelihoods.

As a result, many CBMPA management plans and ordinances lack detailed livelihood programs to offset possible losses created by the establishment of the CBMPA. Sowman et al. (2014) produced one of the few detailed guides I could find on how to incorporate human dimensions into marine protected area management and planning for communities in South Africa. Although well-informed on the social, cultural, political and economic aspects of MPA planning; it still lacks fundamental planning strategies for implementing sustainable livelihood programs that are vital to the success of CBMPAs. Mascia et al. (2010) affirm the scarcity of rigorous research on the human dimensions of MPAs. Christie et al. (2017) identified gaps in current literature and research that are applicable to community-based small-scale marine protected areas. They identified the need to consider human dimensions, governance, politics, socio-economics, culture and tradition in planning for MPAs.

### **1.3 Research Question and Objectives**

Based on a review of the literature and my personal experience as a Peace Corps Volunteer working with two communities in the management of their CBMPAs in the Philippines, my research question is: Does the success of CBMPAs in the Philippines depend to a large extent on whether fisherfolk and others, whose livelihoods are disrupted when a CBMPA is established, have new ways to provide for their families?

The study has two objectives:

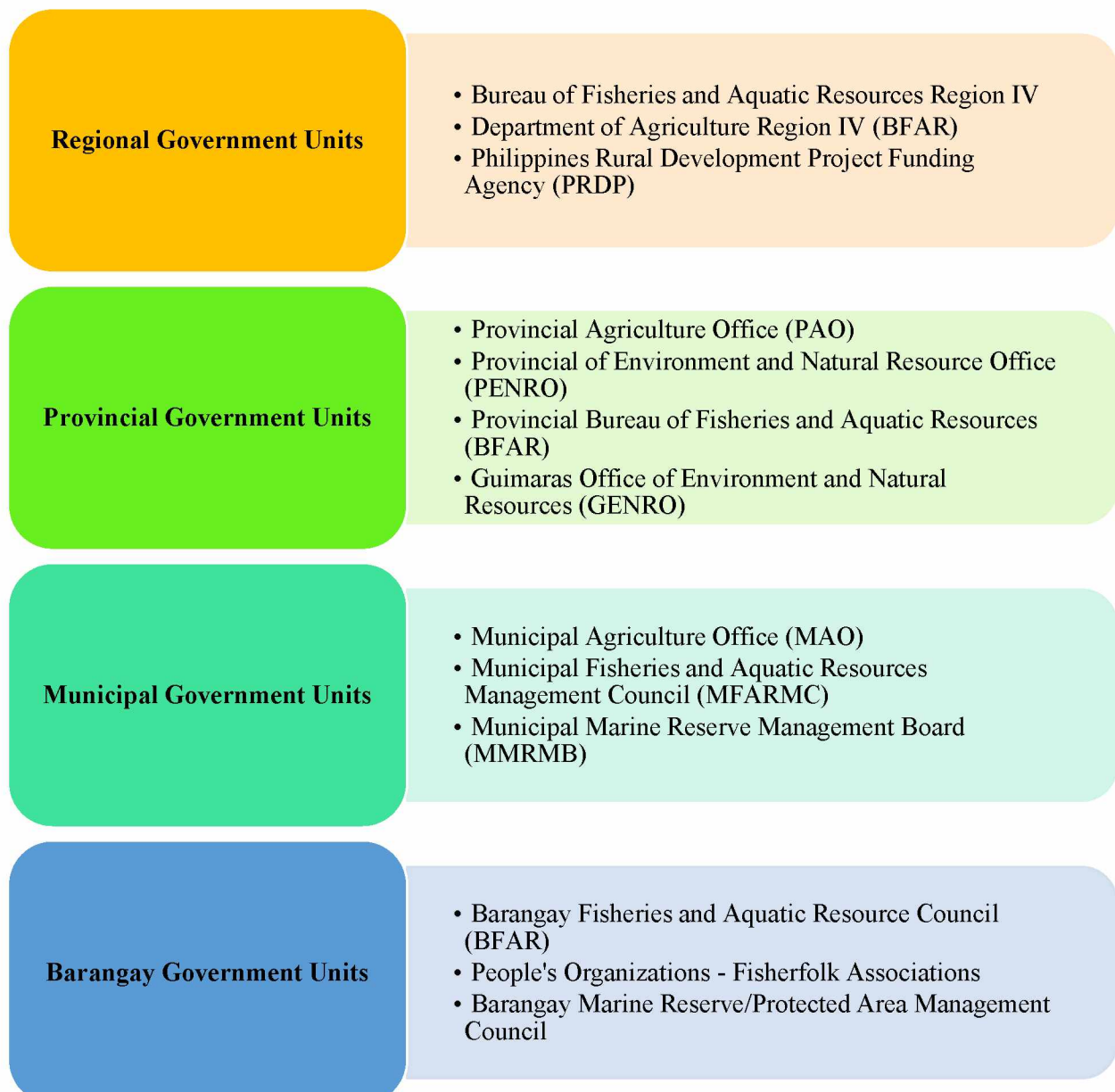
1. Analyze three case studies of CB-MPAs in the Philippines, one of which provided alternative livelihoods for those displaced by the CBMPA, while the other two did not, to see if including alternative livelihoods in these three cases was correlated with greater overall success.
2. Prepare a comprehensive guide for the planning and writing of CBMPA management plans and ordinances in the Philippines. The guide will highlight the importance of sustainable livelihoods and explain how to incorporate human dimensions and livelihoods into CBMPA management. The audience for this guide is anyone associated with the management planning process such as; managers/agriculturists, community members, fisheries technicians, mayors and public officials, NGO affiliates, volunteers and government agency employees.

## 1.4 Background

I had the opportunity to serve as a Coastal Resource Management Peace Corps Volunteer in the Philippines with the main goal of assisting coastal communities' efforts to facilitate the restoration and protection of marine habitats and to enhance food security through community action on fisheries management. I worked with the local Municipal Government of Jordan, Guimaras to implement integrated coastal resource management plans, assist communities with environmental education and training, and establish marine protected areas for the protection of fish stocks and marine habitats. In implementing programs, I maintained a people-centered and participatory approach to conservation and sustainable use of coastal and marine resources. My projects included the restoration of degraded coastal and marine habitats, planning and hosting environmental camps and clubs, development of educational materials, and assisting in the formulation of conservation policies and reforms (Peace Corps Philippines 2016).

The Municipal Government of Jordan requested a Coastal Resource Management Peace Corps Volunteer to strengthen existing CBMPAs and people's organizations, establish a new marine protected area and facilitate the implementation of alternative livelihood programs. I was assigned to report to the Municipal Agriculture Office, where I worked for the Municipal Agriculturist. I was assigned a fisheries technician to serve as my counterpart as well as research assistant. My counterpart, my supervisor and I received trainings and guides produced by USAID, the Philippines Department of Environment and Natural Resources (DENR), IUCN and Fish Conservancy to implement programs. These trainings covered all aspects in implementing integrated coastal resource management through education, participatory coastal resource assessments, drafting coastal environmental profiles, establishing marine protected areas, implementing alternative livelihood measures, creating solid waste management programs, implementing habitat rehabilitation projects, and monitoring and evaluating of coastal resources all through multi-sectoral approach. Programs, projects, and activities are designed to involve all stakeholders including representatives from the local government units and agencies, non-government organizations, academe, people's organizations, enforcement agencies and the local community (Peace Corps Philippines 2016; USAID 2016).

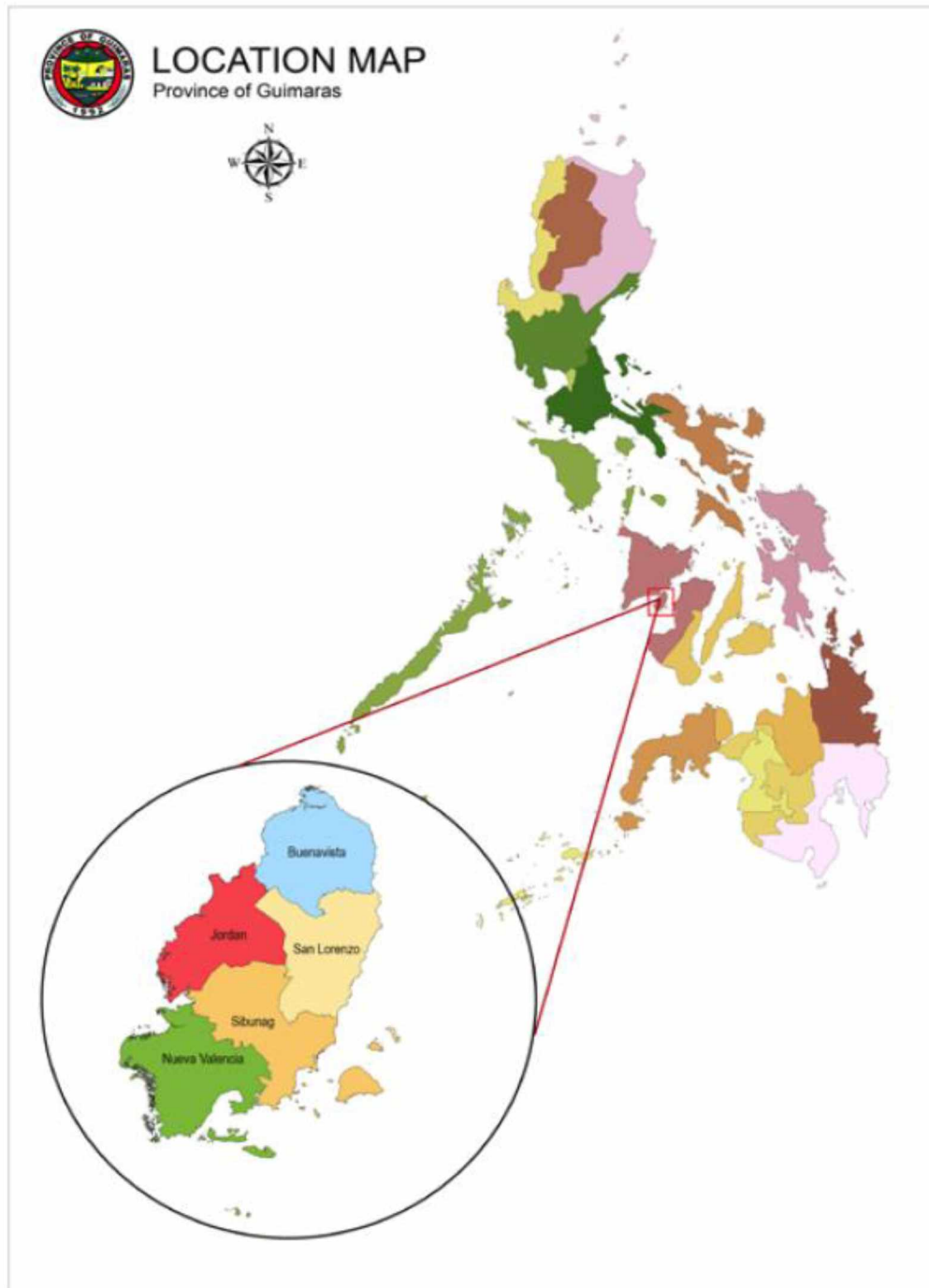
The following is a figure that provides a hierarchy of the levels of government agencies responsible for coastal resource management activities associated with my site.



*Figure 1. Diagram depicting levels of government agencies involved in coastal resource management for the Province of Guimaras. Created by Olivier 2018.*

During my Peace Corps Service, I lived in a rural coastal fishing village of Barangay Lawi, Jordan in the Province of Guimaras. I lived with a host family that depended highly on coastal resources for subsistence needs and a source of income. I had the opportunity to integrate into their lives and experience first-hand the challenges rural small-scale fishing communities are currently experiencing in the Philippines.





*Figure 2. Map of Guimaras Island, DENR 2015.*

The Philippine archipelago consists of more than 7,000 islands and extensive coastal marine ecosystems. For centuries these coastal environments and their associated resources have provided livelihoods for a large portion of the coastal population and serve as an important component of the country's society and economy. The country lies within the Coral Triangle, the area of highest marine

biodiversity on Earth, including an extensive reef system covering an area of 25,060 square kilometers with a total of 464 reef-building coral species, nearly half of all known species (Reefbase 2015).

Fishing is a significant source of livelihood as well as important way of life for the majority of the coastal population. Historically, fishing practices were lucrative but due to its “open-access” nature, uncontrolled fish extraction by the burgeoning population and other international commercial fisheries resulted in a drastic decline of stocks in many fishing grounds over the past few decades. Overfishing and destruction of critical coastal and marine habitat has caused ecological extinctions in many heavily fished areas (Muallil et al. 2013). Coastal communities are relatively poor not because they fish, but due to the depletion of resources that is created by industrial fishing. Rural, coastal household incomes fall below the national average annual, partly due to declining coastal resources (Christie and Osorio 2010). In fact, small-scale fishing provides unique opportunities to alleviate poverty and is more equitable and environmentally friendly than large-scale industrial fishing (Mansfield 2011).

The main cause of fisheries decline world-wide is due to the industrialization of fishing that is out of the control of small-scale community-based fishers. The misconception that too many boats are chasing too few fish ignores vast differences among the kinds of fishing taking place. The blame for overfishing cannot be divided equally among all people or all places. The Northern countries of the world have modernized fisheries into capital-intensive industrial fishing practices to generate high profits. The modernization of fisheries has led to large-scale overfishing and increasing socio-economic inequalities. Over fishing is caused by the dynamics among industrial technologies, consumer markets, models of development, and capitalist relations to nature. As a result, small-scale fisherfolk are left with degraded environments, declining fish stocks, and are faced with marginalization (Mansfield 2011).

The scientific community, natural resource managers and many small-scale fisherfolk are aware the catches of small-scale fishers are falling rapidly while the fast-growing population requires increasing amounts of fish. Fortunately, the rather dire situation of coastal resources is being addressed through management strategies involving local communities, education and increased awareness about the economic and ecological benefits derived from the coastal environments. Nevertheless, the road to improved management of coastal resources in the Philippines remains long and complex (White and Vogt 2000).

Critical habitats within the coastal waters of the Philippines include coral reefs, sea grass beds, and mangroves of which are ecologically interconnected and provide benefits to each other through

biogeochemical processes (Figure 2). For some small islands, coral reefs support more than 70 percent of the total fish catch and provide most of the protein consumed by residents. Research has suggested one hectare of a healthy and biodiverse mangrove forest has the potential to produce up to 680 kilograms of fish per year and one square kilometer of a healthy and biodiverse coral reef has the potential to produce up to 20,000 kilograms of fish per year (Muallil 2014). The following is a figure that displays the ecosystem goods and services derived from mangroves, sea grass and coral reef habitats in the Philippines (White et al. 2006).

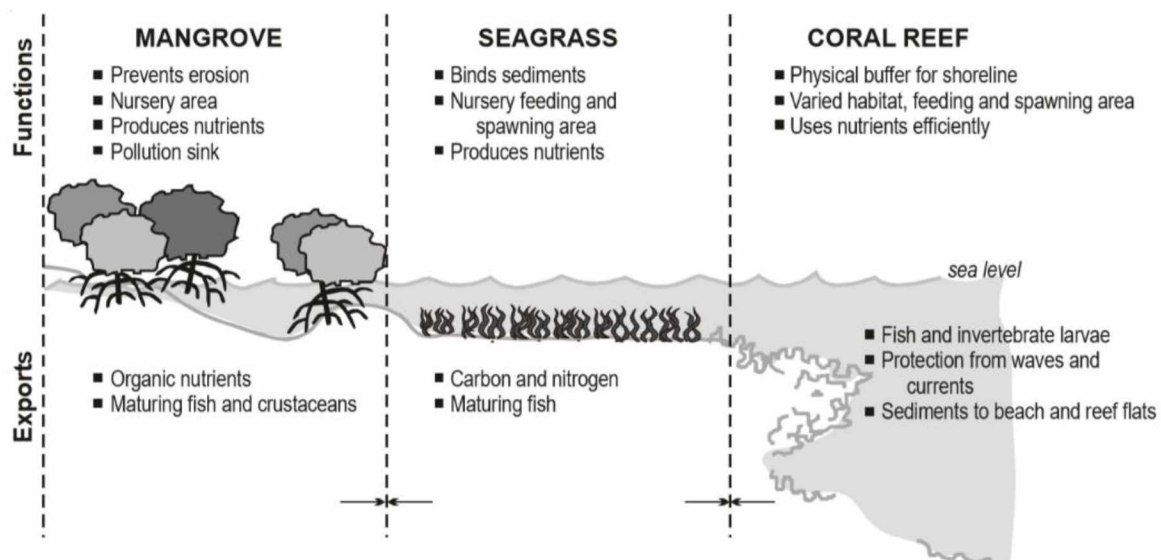


Figure 3. Ecosystem goods and services of the coastal environments in the Philippines.

In 1974, the Philippines established their first coral reef sanctuary through the joint participation of fishermen and their local government. These initiatives were in response to crises of the mid-1970s when coral reefs began to decline due to poor management and destructive fishing practices. These declines had tremendous impacts on food and economic security in rural, coastal communities (White and Vogt 2000). As a result, the Philippines Government established the Philippine Fisheries Code in 1998 to mandate fifteen percent of Municipal waters be set aside as fish sanctuaries (no take zones equivalent to what is referred to in this paper as marine protected areas) (Crawford 2000). Marine protected areas, often defined as social ecological systems, are designed to protect coral reefs and to improve the socio-economic opportunities available to coastal communities through increasing fish yields and alternative income (Christie et al. 2002).

## 1.5 Community-Based Marine Protected Areas

A community-based marine sanctuary is an area of sub-tidal or tidal marine waters where human activities are regulated. It may or may not include portions of inter-tidal waters and other habitats such as seagrass beds, coral reefs and mangroves. CBMPAs that has been legally designated by local government ordinance (municipal) as a protected area that permanently prohibits all human extractive resource activities (particularly fishing). CBMPAs are primarily managed by the local community through municipal or barangay institutions (e.g., FARMCs), or community-based peoples organizations (e.g., sanctuary committee, fishers' associations). It does not include areas with seasonal closures or limited restrictions on only some extractive/fishing activities, or areas which are primarily mangrove reforestation or mangrove/seagrass reserve areas, or artificial reef areas. These community-based marine sanctuaries may be referred to locally as marine sanctuaries, fish sanctuaries, marine reserves or marine protected areas (Crawford et al. 2000). Most CBMPAs are characterized by their lack of significant, outside funding to support programs, projects and livelihoods of community members that may be adversely impacted.

Marine protected areas or MPAs can also be defined as social-ecological systems consisting of bio-geo-physical units and its associated social and political factors and institutions. They are established to serve as sites sustainable fisheries production sites and/or protection of critical coastal habitat and associated marine organisms, as well as sites of natural and cultural heritage.

To be established and recognized by the local and national government, all Marine Protected Areas worldwide must include a marine protected area management plan and ordinance (law) for their effective establishment. This is standard for all marine protected area types ranging from national, community-based or non-government management. In the management planning processes, White et al. (2010) explains the need for outlined processes that provide for the means for community and local government collaboration for the implementation of creative financial mechanisms designed to create long-term self-sustaining MPAs.

Local Government Units (LGUs) are municipalities that have primary responsibility for the overall management, development and protection of all fish and aquatic resources within their respective municipal waters. Through consultation with the Municipal Fisheries Aquatic Resources Management Council (MFARMC), which is composed primarily of local fisherfolk representatives. LGUs consult with them to establish marine protected areas, fish sanctuaries and refuges by ordinance. The MFARMC and the Barangay Level Fisheries and Aquatic Resources Management Council (BFARMC) assists in the

preparation of the overall CRM Municipal Management Plan, MPA Management Plan and ordinances (White et al. 2006). Therefore, incorporating human dimensions into management plans and ordinances for the development of sustainable livelihood programs, is made possible by collaborative efforts of the FARMCs, LGU and local community. The local communities discussed in this analysis include Apo Island, Barangau Lawi, Barangay Balcon Melliza, and Barangay Balcon Maravilla.

## **1.6 Outline of Chapters**

This analysis includes 5 chapters in addition to the introduction. Chapter 2 is a review of the literature which describes previous investigations of sustainable livelihoods and their relevance to CBMPAs. In Chapter 3, I describe the methods that were used to collect and analyze the data. In chapter 4, I present the results and discuss their implications in regards to CBMPA management planning and sustainable livelihoods. The analysis concludes with Chapter 6 that provides conclusions and future research recommendations. Following the analysis, I present a comprehensive guide that I developed specifically to help incorporate sustainable livelihoods into management planning for CBMPAs.

## Chapter 2. Literature Review

The following is a review of current literature and management guides regarding marine protected areas and sustainable livelihoods, focused primarily on the Philippines. I discuss the latest research on the importance of including human dimensions and capital asset information in developing sustainable livelihood programs. I then discuss what scholars have found regarding the impacts sustainable livelihoods have on the overall success of CBMPAs as well as ways to measure the success of CBMPAs.

### 2.1 Research on the Human Dimensions of Conservation

*“Properly taking into account the many human dimensions of Marine Protected Areas (MPAs) – social, economic, cultural, and institutional – is critical to MPA success.”*

*(Charles and Wilson 2009, pg. 6)*

#### 2.1.1 Overview

Human dimensions are defined as the social, economic, cultural, and political aspects that need to be taken into account in community-based marine protected area planning and management process. Information surrounding human dimensions may be critical to consider when planning and implementing sustainable livelihood programs. While interest in the human dimensions of conservation has grown, there is still a lack of full engagement with its recommendation in conservation practice in general and CBMPAs. Historically, stakeholders have designed CBMPAs based on ecological and biological data while ignoring the human dimensions that may impact those management interventions. Incorporating qualitative information into planning is a challenging process, thus often ignored (Christie et al. 2017).

Human dimensions are characterized in this analysis as the social, economic, cultural, and political aspects. Sowman et al. (2014) explains that it is crucial for all stakeholders to recognize that these dimensions need to be considered, understood and addressed in the process of MPA planning and management in order to minimize the negative impacts and enhance benefits from conservation areas. The main objectives of marine protected areas are to provide benefits to the marine ecosystems as well as to the humans to with those marine ecosystems support.

After review of the literature, I created Table 1 to depict aspects of each human dimension essential for consideration in the planning and implementation of CBMPAs and sustainable livelihoods for the associated communities.

*Table 1. Aspects of human dimensions.*

<b>Human dimension:</b>	<b>Aspects of each human dimension:</b>	<b>Authors reviewed:</b>
Social	Identity Ethnicity Race Gender Age Demographic Variables Community Well-being History	Harris and Johnson 2007; Sowman et al. 2014; Charles and Wilson 2009; Gregory et al. 2009
Cultural	Values Religion Norms Traditional Practices Beliefs Customs Attitudes Knowledge	Satterfield et al. 2013; Campbell 2003; Sowman et al. 2014; Morrillo et al. 2013
Political	Governance Hegemony Ideology Institutions Colonialism Power Social Class Equity/Justice Fairness Sovereignty	Sowman et al. 2014; Charles and Wilson 2009; Crawford et al. 2000; Christie et al. 2017
Economic	Wealth Wage Production Subsistence Social Class Mixed Economies Globalization Capitalism Employment Ecosystem goods and services Livelihoods	Samonte et al. 2016; Sowman et al. 2014; Charles and Wilson 2009

### 2.1.2 Social Aspects

The social dimension involves consideration of gender, ethnicity, identity, race, well-being, ethnocentrism, demographic variables, social cohesion and history (Sowman et al. 2014). In management

planning for CBMPAs, biological and ecological data must be supplemented with people-oriented information about human-values and goals that relate to the area, about historical and current human uses of the area, and about the social considerations within the area (Charles and Wilson 2009). Social data in the context of management planning for CBMPAs should include information surrounding the community's existing People's Organizations, demographics, social networks, historical context, and population variables.

According to Charles and Wilson (2009), building social frameworks of CBMPAs, requires an understanding of the social structure and underlying nature of the marine protected area including the following (Charles and Wilson 2009): societies objectives with respect to the CBMPA, relevant history and traditions of the community, the social, cultural and economic environment and key features of the corresponding marine environment.

### **2.1.3 Cultural Aspects**

The cultural dimension is concerned with examining customary fishing practices and rights, including local and indigenous knowledge, which is critical in ascertaining whether customary rights are relevant in a particular context. Cultural information requires the consideration of people's way of life, sense of place, culture and cultural heritage, and considers how communities have adapted to management interventions over time (Sowman et al. 2014).

In planning, culture impacts the ways individuals interact with their surroundings and how those individuals define their place in nature. Filipinos are characterized for valuing and prioritizing the means to provide for their families by any means necessary, including going against set laws and regulations in efforts to "put food on the table". As a result, vulnerable and marginalized coastal families may feel pressured to continue to fish within the core zone of a CBMPA in efforts to up hold their traditional values (Morrillo et al. 2013).

Culture is the holistic means and systems of the way of communities' life. Sea turtles for example may be part of a community's way of life, and this may be reflected in art, crafts, or music. Cultural aspects of a community are opportunities and assets that can be utilized in the implementation of sustainable livelihoods. Through culture, society determines what constitutes nature and what role nature plays in cultural and social life (Campbell 2003). As a result, the influences culture has on a community's



interaction with their environment is important to planners and managers of natural resources to understand.

#### **2.1.4 Political Aspects**

The political dimension includes aspects of tenure and ownership, equity and access rights, representation and legitimacy, how benefits and losses are distributed among stakeholders, and issues of politics and patronage. Political aspects also include the consideration of the enabling laws and policies for CBMPA planning and management, and the institutional arrangements governing CBMPAs, as well as the nature of enforcement and compliance, are also important issues to take into account (Sowman et al. 2014).

The planning and processes of CBMPAs can often be at the mercy of larger scale political agendas (such as the turnover of governments), funding uncertainties, and shifts in political support of a CBMPA depending on the leadership, interest, and motivation (Charles and Wilson 2009). Political dimensions could have direct impacts on the success or failure of the implementation of CBMPAs and sustainable livelihood programs responsible for the CBMPA's success. For example, in the case of the Sagay Municipality, the strong leadership of the mayor helped the process in planning for the CBMPA project, but the turnover in leadership affected the actual implementation of the CBMPA (Crawford et al. 2000). As a result, political aspects and their potential impacts to success of CBMPAs should thus be considered during the management planning process. Christie et al. (2017) identifies the number of important political and governance considerations, including questions about which groups (e.g. NGOs, the private sector, local government units, political elites, local people) and what underlying interests (e.g. conservation fisheries, geopolitics, sovereignty) drive the process of creating and managing MPAs.

#### **2.1.5 Economic Aspects**

The economic dimensions include livelihood practices, options and opportunities, as well as issues of poverty, food security, employment, income and assets, livelihoods, access to markets and livelihood development. Economic aspects also take into consideration the valuation of ecosystem goods and services (Sowman et al. 2014).

The economic aspects of a community are key components in creating a livelihood program or project for communities yet are often overlooked during the planning process. Because the livelihoods of remote coastal communities are closely dependent upon economic stability and success, sustainable coastal resource management must provide a component that is both feasible and profitable to local economies. Particularly in the coastal zones of the Philippines, much of communities' economies are based on fisheries and tourism. Community-based marine protected areas have been observed to produce varied economic impacts for associated rural communities. For example, Samonte et al. (2016) found that losses occurring through MPA establishment to local fishers is higher than expected at least in the short run (up to four years) where the spill-over effect has not yet commenced. Fishers' net revenue was observed to significantly decrease within the first three years of MPA establishment.

A sustainable livelihoods approach, starts not from the perspective of the ecosystem or the management system, but instead from the perspective of coastal communities and their residents. From this perspective, maintaining sustainable livelihoods such as stable employment with reasonable incomes is typically a priority of the community, thus highlighting the need to consider the wider coastal economy (Charles and Wilson 2009).

## **2.2 Assets**

Assets are essential in creating alternative and sustainable livelihood programs for a community establishing a marine protected area. They are the existing tools, resources, wealth, and opportunities that will serve as the foundation or be used in creating sustainable livelihoods. Assets are objects of value that an entity owns, benefits from or has use in generating income. An asset can be tangible or intangible and is affected by external drivers, such as institutions, policies, legislation and markets.

Assets are defined through the following categories (adapted from Asian World Bank 2017):

- a) Human capital, e.g., health, nutrition, education, knowledge and skills, capacity to work, capacity to adapt
- b) Social capital, e.g., networks and connections (patronage, neighbors, kinship), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviors, common rules and sanctions, collective representation, mechanisms for participation in decision-making, leadership
- c) Natural capital, e.g., land and produce, water and aquatic resources, trees and forest products, wildlife, wild foods and fibers, biodiversity, environmental services

- d) Physical capital, e.g., infrastructure (transportation, roads, secure shelter and buildings, water supply and sanitation, energy, communications), tools and technology (tools and equipment for production, seed, fertilizer, pesticides, traditional technology)
- e) Financial capital, e.g., savings, credit and debt (formal, informal), remittances, pensions, wages

The sustainable livelihoods framework developed by the World Bank incorporates the use of the categories of capital assets and their interactions may constrain or enhance livelihood opportunities. Human dimensions thus provide contextual information regarding the community itself while assets provide tools or resources to be capitalized on in the process of developing sustainable livelihoods (Asian Development Bank 2017).

Prior to the establishment of CBMPAs and sustainable livelihood programs, an inventory of the capital assets within a community could provide for improved opportunities to implement livelihood programs. Creative problem solving to environmental and natural resource issues through making use of resources already available provides for effective and sustainable solutions that then can indirectly influence the success of a CBMPA (Bennet and Dearden 2014). For example, developing a livelihood program out of a pre-existing women's group to produce hand-crafted souvenirs requires consideration of social human dimensional aspects and the use of social and human capital.

Sustainable livelihood framework thus requires the understanding of a community's or household's assets, the activities in which households can engage with a given asset profile, and the management processes of institutions and legal framework that govern access to assets and to alternative activities. Allison and Ellis (2001) recommend the diversification of strategies for income generation for rural developing communities to reduce risks of livelihood failure. The outcomes of shifting primarily fishing communities to other income generating practices has the potential to help overcome the uneven use of assets caused by seasonality, reduce vulnerability, generate financial resources in the absence of credit markets and provide advantages in the presence of widespread market failures and uncertainties (Allison and Ellis 2001). However, prior to any shift in income-generating practice, cultural ties and preferences need to be fully understood and acknowledged.

### **2.3 Management Planning Process and Output**

The planning process for implementing CBMPAs and sustainable livelihood programs includes the collaboration of all stakeholders and user groups to generate information and data that will be used in

management plans and ordinances. The following section provides a literature review surrounding management planning processes, management plans and ordinances associated with the establishment of CBMPAs and the implementation of associated sustainable livelihood programs.

### **2.3.1 Involving Communities in Management Planning**

Communities associated and impacted by the establishment of CBMPAs include a diverse array of stakeholders and user groups. Community members that should be involved in the generation of information and insight for the production of CBMPA management plans and ordinances could comprise of the following: subsistence-level fishers, commercial fishers, farmers, transporters, tourism officers, property/industry managers, and local government units/local government agencies (Deguit et al. 2004). Although current literature focuses on the importance of involving local community members in the planning process, steps and how-to procedures are often absent in the literature. As a result, I provide suggestions for effective community engagement to gather critical information surrounding human dimensions and capital assets that are used in the implementation of CBMPAs and sustainable livelihoods.

Deeper knowledge and insights on the available natural-capital assets for the planning of sustainable livelihoods is gained through involving local community members in the gathering of biological and ecological data of their surrounding environment. Although high levels of public participation have high costs in resources and time, the data generated and outputs produced are considered worth-while and cost-effective in the long term (Charles and Wilson 2009). CBMPA management plans, for example, that were crafted in-house by local fisherfolk associations, fisheries technicians and LGU stakeholders may have taken longer and lacked formality, however the process of writing the plan instilled a greater sense of community ownership as well as contribution to community development (Thomas and Middleton 2003).

Projects that did not provide for people's involvement in activities intended to improve the socioeconomic welfare of communities have been observed to result in failure. For example, the Natural Resource Management Center (NRMC) project located in the Visayas, Philippines aimed to implement a management plan prepared by technical scientists and management teams through a top-down resource-oriented approach failed to include the input of stakeholders of the resource as well as acknowledge the social and political characteristics of the communities. The NRMC projects have failed miserably as their designated protected areas continue to be devastated by fishermen (Alcala 1998).

### 2.3.2 CBMPA Management Plans

Management plans outline the process and procedures that will be executed to reach goals and objectives of a community-based marine protected area. To ensure the success of a community-based marine protected area to achieve set goals and objectives through community support, the CBMPA management plan must include a planning framework for sustainable livelihoods.

Management plans outline the process and procedures that will be executed to reach goals and objectives of a community-based marine protected area. The plan addresses the problems that spark the need for the establishment of the CBMPA as well as the steps and actions needed to be taken to provide solutions. Management plans take on various forms such as business plans, spatial zoning plans, conservation plans, developmental plans, etc. The extent of operational detail of each management plan is under the discretion of the stakeholders and agencies involved in the management (White et al. 2006). Within the management plan should be clearly defined and shared objectives that are valuable for defining expected outcomes, for ensuring that expectations are not overly ambitious, and for guiding the relative importance of socioeconomic, political, and biological criteria in the decision-making process (Lundquist and Granek 2005).

Claudet and Pelletier (2004) conducted a large scale study of management plans and identified the objectives of marine protected areas to be synthesized as follows: (1) conservation and protection of natural resources in areas that are recognized as particularly important in terms of ecological diversity to ensure their long-term viability and to maintain their genetic diversity or to allow populations to recover to their pristine level; (2) restoration of damaged or over-exploited areas considered as critical to the survival of such species, or of significance for the life cycles of economically important species; (3) improvement of the relationship between man, his environment, and economic activities, by maintaining traditional uses and the sustainable exploitation of resources, by preventing outside activities from detrimentally impacting the MPA, and by protecting and managing historical, cultural and aesthetic sites; (4) improvement of fishing yields, by protecting spawning stock biomass, by acting as a source of recruited and post-recruited stages for surrounding areas, by restoring the age structure of natural populations, and by acting as an insurance against mismanagement in fishing areas; (5) resolution of present or anticipated conflicts between coastal area users; (6) improvement of knowledge about marine environment by dealing with research and educational aspects; and (7) valuation of heritage for the local administration through tourism and economic profitability for the residents.

Lundquist and Grenak (2005) propose an approach for community members and stakeholders to contribute their social, economic, political and traditional ecological knowledge into the planning framework for marine protected areas. Based on their approach and observations from the field. The following is a list of elements I found were essential to include in CBMPA management plans and ordinances:

1. Identification and analysis of capital assets located within the community(s)
2. Strategic action plan of alternative, sustainable livelihood program(s)
3. Information and analysis of the social aspects community(s)
4. Information and analysis of the cultural aspects of the community(s)
5. Information and analysis of the political aspects of the community(s)
6. Information and analysis of the economic aspects of the community(s)

Management plans are often extensively used by the local government units, government agencies and local communities as a source of background information, established goals and objectives, timeline of action implementation, budget requirements, and indicators used to monitor success. For example, the Department of Agriculture's Philippine Rural Development Program (PRDP) specifically makes use of MPA management plans to generate grant opportunities and project proposals for funding livelihood programs. The PRDP serves as a funding entity for infrastructure development, enterprise development, local planning and project support. Regional PRDP sectors coordinate with local government units to implement integrated coastal resource management programs, especially in the form of alternative livelihood development.

### **2.3.3 CBMPA Ordinances**

Ordinances in the Philippines serve as written documents of law that are approved by a town council known as the Sangguniang Bayan Council. These ordinances provide a system of rules that are created and enforced for the establishment of a community-based marine protected area. Livelihood management planning should be incorporated into the framework of CBMPA ordinances to mandate the maintenance and sustainability of the community's livelihood by law. As a result, this will provide for improved community support of the CBMPA which will result in its improved overall success. For example, if the CBMPA is designed to preserve an area for tourism development, it could well be part of a tourism development law and suggest the appropriate approach to take when drafting new, MPA-specific laws (Salum et al. 2000).

Most municipal ordinances that establish CBMPAs rarely include significant information regarding proposed user fee systems, contexts for eco-tourism activities and frameworks for other sustainable livelihood programs implemented within the community. The language used to describe these components is critical to consider and impact the outcome of a CMPA's success due to the complex and bureaucratic processes that make up politics in modern-day Philippines. In addressing political, social or economic issues that arise in management, local political leaders turn to the language used within the CBMPA ordinances to make approved jurisdictional decisions (White et al. 2006). Thorough consultation with key stakeholders is essential to ensure the local government (LGU) and associated community supports the CBMPA management plan prior to the completion of the ordinance (Post 2016).

## **2.4 Sustainable Livelihood Development**

A livelihood comprises of the capabilities, assets, and activities required for a means of living. It is deemed sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities, assets, and activities currently and in the future, while not undermining the natural resource base (Jiwa and Wanjau 2008). The goal of alternative sustainable livelihoods is to find solutions that fit people's current livelihood strategies and that will have a positive impact on the ways by which people make a living and the use of their natural resources. A key component to making livelihood programs successful is to promote livelihood diversification through the transformation of economies (Sowman et al. 2014).

There are opportunity costs in the form of lost catches due to the established restrictions of a CBMPA and direct operating costs such as extra travel costs for fishers and crowding externalities (Charles and Wilson 2009). Being able to demonstrate that the benefits derived from the establishment of CBMPAs are tangible and equitably distributed over a wide range of users could be the deciding factor for the acceptance and long-term success of a CBMPA (Charles and Wilson 2009).

Livelihoods are made up of the assets (natural, physical, human, financial and social capital) and the human dimensions that dictate the community's interaction with the capital assets that determines the living gained by an individual or household. The diversification of rural livelihoods is a critical strategy to reduce risks of income failure and overcome the uneven use of assets (Allison and Ellis 2001).

The sustainable livelihood approach (SLA) created by the Asian Development Bank develops a framework of objectives, scope, and priorities for livelihood planning. The SLA begins with coastal

community perspectives to produce potential livelihood outcomes that include increased income, increased well-being, reduced vulnerability, improved food security, more sustainable use of natural resources, and recovered human dignity (Asian Development Bank 2017).

Interestingly, when preparing a community for the establishment of marine protected areas, alternative livelihood programs are often one of the last aspects that are focused on throughout the entirety of the process. In fact, they are often considered after the CBMPA ordinance establishing a “no-take zone” or area where any method of extraction is prohibited by law. In most CBMPA management plans alternative livelihoods are included as an afterthought or considered optional. However, there is a growing realization that efforts to maintain high biodiversity levels and pristine coastal areas are critical to attract and sustain livelihood opportunities such as tourism and enhancements in food security. Livelihood programs in themselves may create additional conflicts in coastal resource use and management, thus require a full understanding of human dimensions and incorporation into planning within the management framework (White et al. 2006).

Research conducted by Duthy and Bolo-Duthy (2003) found that experiences with tourism among the fisherfolk of Coron, Palawan had varied according to a range of geographical and social factors. While tourism has provided benefits for some fishers in terms of additional employment and an increased market for fish, for many other fishers it has represented a threat because of increased pressures for development and a strong-held notion that fishers will be excluded from these developments. The increasing trend of tourism is linked to the purchase and development of coastal land by wealthy local Filipino elites and foreigners, two social groups strongly involved in the tourism industry throughout the Philippines. As a result of attracting older retirees from around the world, investment has caused property prices throughout coastal municipalities to increase rapidly. In fact, many fisherfolk in many places of the Philippines have little to no secured land tenure. Labelled as “squatters” despite the fact that some families have been living in these coastal areas for generations, coastal residents throughout the Philippines are currently vulnerable to possible eviction. The historical patterns of land insecurity and more recently the establishment of marine protected areas has caused marginalization and dispossession of many rural communities throughout the Philippines by local elites. Poor fisherfolk argue that they feel powerless, marginalized and at the mercy of an allegedly corrupt government system (Duthy and Bolo-Duthy 2003).

Perceptions of the corruption of government in the Philippines are strongly held among fisherfolk who believe elite politicians are seen to engage in nepotism and patronage, providing political support to



developers and other powerful clients who provide funds. For example, the process of transitioning from a fishing economy to an economy based more on tourism is neither simple, nor necessarily resulting in benefits shared by all user groups. Tourism, based mostly in coastal land, is more closely associated with the development of private property and hence possibilities for exclusion and thus viewed with suspicion (Fabinyi 2010).

## **2.5 Principles for Successful CBMPAs**

The success of CBMPAs is not only contingent on simply securing an institutional status as protected area or enduring over the long-term, but also maintains or improves ecological, social, political and economic outcomes. In this analysis, I identify successful CBMPAs to produce the following outcomes based on goals and objectives (Rossetier and Levine 2014):

1. Increases in species targeted for conservation, biodiversity, or improved ecological conditions in the MPA
2. No significant loss of income or livelihood potential for local stakeholders, or losses or incomes are balanced and improved by alternative benefits
3. General compliance by local community members and stakeholder groups with the established MPA rules and regulations, either through legal enforcement or social pressures
4. A perception of positive outcomes from the MPA by the majority of local community members and stakeholder groups.

The implementation of CBMPAs in the Philippines has grown rapidly in recent years, however research has shown that they have yet to reach their full potential. Research is beginning to suggest social factors, not biological or physical variables, are the primary determinants of CBMPA success or failure. In addition, scientists and managers during the International Coral Reef Symposium agreed on the importance of implementing both biological and social monitoring of the impacts created by CBMPAs (Mascia 2003).

Christie (2004) demonstrated through case study review, that MPAs in the Philippines and Indonesia were biological successes yet social failures due to limited community participation in planning, inequitable sharing of economic benefits and lacking means for consensus building. Further, through field observations and extensive literature review, Bennett and Dearden (2014) identified reasons for CBMPAs to fail in achieving conservation objectives to include the following: (1) Continued illegal fishing within the core zone of marine protected areas due to the lack of IEC, community support/ownership, alternative livelihood programs to offset losses from not fishing; (2) damaging/harmful effects from tourism, (3) lack of sustainable funding for infrastructure, programs, and projects; (4) climate change, and (5) lack of solid waste management.

There are challenges in ensuring benefits of CBMPAs to protect ecosystem processes, while also addressing socio-economic, cultural and political realities of regulating what may have been historically considered common property (Charles and Wilson 2009). Restricting livelihoods for example, without providing alternatives and limiting access to traditional areas that are now open to tourists has shown in some case studies to exacerbate pre-existing conflicts and lead to violence against officials (Bennett and Dearden 2014). Therefore, broader more integrative studies confirm the importance of considering community livelihoods, particularly when “no-take” zones are established for the overall success of the CBMPA. The challenge now remains how to translate information generated surrounding human dimensions into management and planning that enhances CBMPA performance.

## **Chapter 3. Methods**

This research project is a case study of three community-based marine protected areas in the Philippines. According to Yin (2018,2) a case study is “an empirical” method that investigates a contemporary phenomenon in depth and within a real—world context, especially when the boundaries between the phenomenon and its context may not be clearly evident.

### **3.2 Site Selection**

Three cases were selected: Balcon Marine Protected Area, Lawi Marine Reserve and Apo Reserve and Apo Island Marine Reserve. I chose these three sites because they are similar in many respects, but different in the level of success they have had their CBMPAs. These three sites are located in the Visayas Region of the Philippines. Balcon Marine Protected Area and Lawi Marine Reserve are both located in the Municipality of Jordan, in the Province of Guimaras where I was working. During my Peace Corps Service, I documented the management processes, human dimensions, bio-ecological aspects, and overall CBMPA success of these two sites. While I incorporated data from these two cases, I also included a CBMPA that was widely regarded as a success. Natural resource managers and the Director of the Coastal Resource Management Program of Peace Corps Philippines suggested I should include Apo Island Marine Reserve in this case study because it serves as a model of a successful CBMPA (Marten 2005). Table 2 compares several aspects of the three sites, one of the primary differences being the age of the three reserves: Apo Island was established in 1986, Lawi in 1997, and Balcon in 2011.

Table 2. Case study sites used in this analysis.

<b>CB-MPA Analyzed</b>	Lawi Marine Reserve and Sanctuary	Balcon Marine Protected Area	Apo Island Marine Reserve
<b>Location</b>	Municipality of Jordan, Province of Guimaras	Municipality of Jordan, Province of Guimaras	Municipality of Dauin, Province of Negros Oriental
<b>Date Established</b>	1997	2011	1986
<b>Associated Communities</b>	Barangay Lawi	Barangay Balcon Melliza and Balon Maravilla	Barangay
<b>Methods of Data Collection</b>	Observations, my daily journal, interviews, bio-ecological assessments	Observations, my daily journal, interviews, bio-ecological assessments	Review of government documents and reports

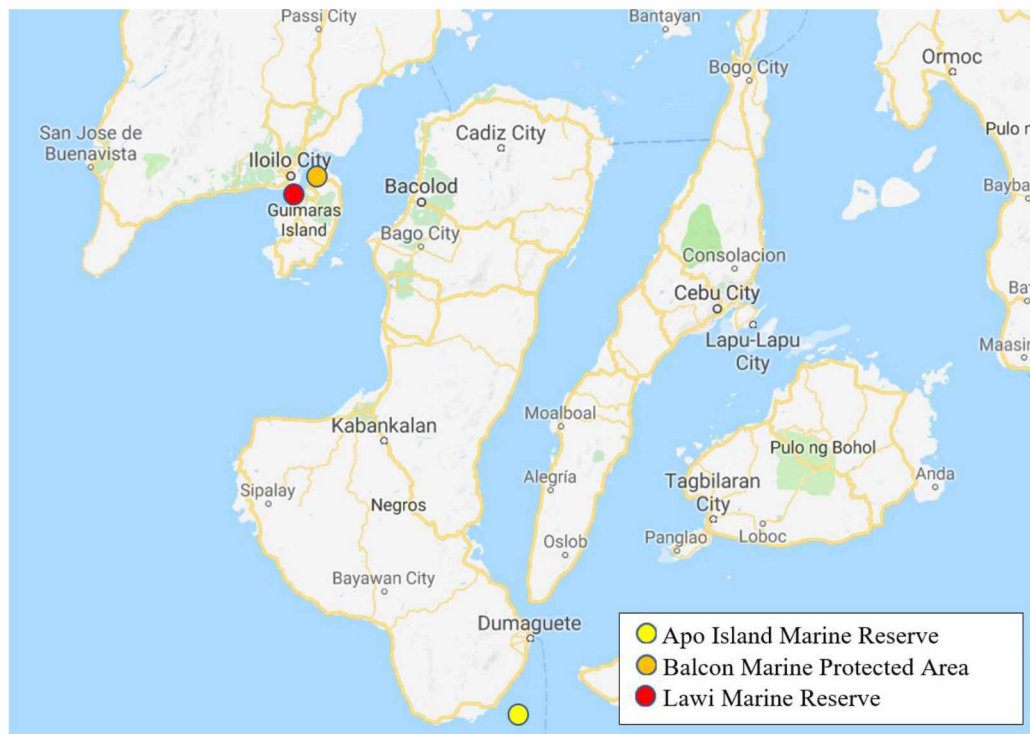


Figure 4. Map of the case study sites used in this analysis.

### 3.3 Data Collection

In this exploratory research, I wanted to determine if CBMPAs that included alternative livelihoods are more successful than those that do not; I wanted to look for possible correlations between the two. In this case, the exploratory variable was “sustainable livelihood development” and the dependent variable was “success”. I needed to devise a method for “measuring” whether sustainable livelihood development existed in a given case as well as a way to determine if each case was “successful”.

The following table lists the factors I considered for assessing the explanatory and the dependent variable. I used 5 criteria for determining whether a CBMPA provided alternative livelihoods and 4 for determining the success of a CBMPA. These criteria were chosen based on published research and case studies of CBMPAs in the Philippines.

Table 3. Criteria used to evaluate the explanatory and dependent variables.

Criteria for Sustainable Livelihood Development (the explanatory variable)	
Criterion (criteria suggested by Scoones 1998)	Primary Sources of Data for Each
1. Acknowledgement of contexts, conditions and trends	Data used to analyze these criteria included written reports, published journal articles, management plans and ordinances that are cited individually in the results.
2. Available livelihood resources	
3. Institutional processes and organizational structures	
4. Livelihood strategies	
5. Sustainable livelihood outcomes	
Criteria for Success of a CBMPA (the dependent variable)	
Criterion (criteria suggested by Rossiter and Levine 2014)	Primary Sources of Data for Each
1. Increase in species targeted or improved ecological condition in the MPA	Data used to analyze these criteria included written reports, published journal articles, management plans and ordinances that are cited individually in the results.
2. Income or livelihood of community unharmed or improved	
3. Compliance by local community and stakeholder groups.	
4. Perception of positive outcomes from the local community and stakeholder groups.	

I used three methods of data collection: (1) interviews and surveys, (2) participant observation of my experiences working in these rural communities that I documented in a daily journal, and (3) content analysis of government documents and reports. I conducted informal interviews with fisherfolk, local government officials, and government agency affiliates throughout the time of my Peace Corps Assignment in the Municipality of Jordan. I was fortunate to have the assistance of fisheries technicians and fisherfolk association members who translated my questions into the local dialect of Hiligaynon. I first interviewed fisherfolk, local elected officials, and government agency personnel using open ended questions that followed a written interview guide. The interview questions were designed to collect data on the economics, politics, culture, social attributes, history and available infrastructure in their coastal community. At the close of my Peace Corps Service, I surveyed members of the Municipal Marine Reserve Management Board (MMRMB), who are experts in their local MPAs, and asked them to rank the most important determinants of the success of a CBMPA.

Interviewees were selected based on their availability and efficient access. I interviewed a total of twelve community members that were associated with the Balcon Marine Protected Area and Lawi Marine Reserve including male and female fisherfolk, wives of fisherfolk, Barangay Officials, fisheries technicians, Sangguniang Bayan Councilors, and the CRM Peace Corps Director. I used an informal and open interview guide, shown in Table 3, to generally direct questions while providing the ability for participants to elaborate or expand on certain topics. The informality of the interview process helped produce relaxed output. Interviews were conducted out in the field, in participant's homes, and in government agency offices. Most interviews were tape recorded, transcribed and coded for analysis. The interviews were coded based on key points of the human dimensions of communities, aspects of marine protected area management, and aspects of community livelihoods. The codes were developed based on the criteria describing human dimensions, scoring alternative livelihoods, and scoring the overall success of community based marine protected areas.

Table 4. List of questions that were used during unstructured interviews with community members, fisherfolk, government agency personnel, and elected officials. These questions were reviewed and approved by the IRB.

<b>Questions from unstructured interview guide:</b> <i>(Submitted and approved by the IRB)</i>
1. May I ask some personal questions? Is that okay?
2. Can I record this interview?
3. How many years have you lived here?
4. What do you like about your environment?
5. Are you a fisherman/fisherwoman?

6. How is a typical day?
7. What fish do you catch?
8. What do you use to catch fish?
9. How many times do you eat a day?
10. Do you have a comfort room in your house?
11. How did you learn how to fish?
12. What do you like about fishing?
13. How much do you catch?
14. How much do you sell and how much of your catch is for your family?
15. How much do you make from sales?
16. Is it enough to support you?
17. What is your main source of livelihood?
18. Do you save some money?
19. What are the common illnesses here?
20. How many children do you have?
21. What are your goals for them (your children)?
22. Are there problems concerning the environment?
23. Has your fish catch increased? Why?
24. Has your fish catch decreased? Why?
25. Do you have support from the government?
26. Do you have ownership over this project?
27. Do you have ownership of this land?
28. How do you dispose of your trash?
29. What can you say about trash in the ocean?
30. Are you a member of an association?
31. How can you improve your association?
32. What do you like about your association?
33. What can you say about Marine Protected Areas?
34. How can Marine Protected Areas help you?
35. What could be done to improve the Marine Protected Areas?
36. What does the Bantay Dagat help with?
37. Why is there fishing inside a Marine Protected Area?
38. Do you have ideas for alternative livelihoods?
39. What can you say about corals/sea grass/mangroves?
40. What is important about corals/sea grass/mangroves?
41. Are sea turtles/manatees/whale sharks important? Why?

### **3.4 Members of the Municipal Marine Reserve Management Board Surveys**

The Municipal Marine Reserve Management Board (MMRMB) plays a key role in the management of marine protected areas throughout the Municipality of Jordan, Guimaras. The goals of the MMRMB are to develop MPAs as responsible ecotourism destinations, increase livelihood diversity and opportunities, empower local communities to adhere to set regulations, and improve the existing condition of the bio-physical resources. Members of the Municipal Marine Reserve Management Board include fisheries technicians, natural resource managers, presidents of fisherfolk associations, barangay captains, municipal council (Sangguniang Bayan) members, government agency personnel and the municipal mayor. As a result, the perceptions of the MMRMB members carry weight due to their in-depth knowledge of the local coastal resource management processes, the current state of local marine ecosystems, and the local communities associated with the CBMPAs. The surveys consisted of a written questionnaire that was translated into the local dialect of Hiligaynon. It included short answer questions and Likert-scale ranking questions. The participants were encouraged to answer using Hiligaynon or the native language of which they felt most proficient. My primary purpose of this survey was to determine what these Board members felt were the key factors in the success or failures of MPAs. The open-ended questions are listed below. This data also transcribed and coded. The responses were coded based on key themes and ideas that were identified within their responses. Key themes included management practices, indicators for success of MPAs, suggestions to stop illegal fishing, reasons for continued illegal fishing, and recommended alternative livelihood programs to offset potential losses from not fishing.

1. What factors encourage local fisherfolk to support the establishment of a Marine Protected Area?
2. What do you believe is the most important factor in effective Marine Protected Area Management?
3. How can we influence fishers to stop fishing illegally?
4. What is the primary reason why people fish illegally?
5. Are CBMPAs achieving their goals and objectives in the Province of Guimaras?
6. How are CBMPAs achieving their goals and objectives in the Province of Guimaras?
7. What are the most appropriate alternative livelihood programs for displaced fishers in this area?

### **3.5 Collection of human dimension information and associated assets for the Balcon MPA and Lawi Marine Reserve**

Local community members and stakeholders associated with the Balcon Marine Protected Area and Lawi Marine Reserve were involved in the gathering of human dimensions information and associated assets. The data on human dimensions was collected through interviews, review of government



records, and observations in collaboration with locals. Assets within this study are defined as natural, social, human, physical, financial, cultural, and political capitals (Bennett and Dearden 2013). These informal interviews were conducted by myself and my counterpart, Municipal Fisheries Technician. Local stakeholders were interviewed to provide contextual information surrounding each of the sites' social, cultural, political, and economic aspects. For each human dimension described, related assets that might or are used for potential, livelihood programs are defined. The same informal interview guide was used. In addition, we reviewed Municipal reports and documents to gather information surrounding demographics, population, socio-economics, and politics of Barangay Lawi, Barangay Balcon Melliza and Balcon Maravilla.

### 3.6 Collection of bioecological data for the Balcon MPA and Lawi Marine Reserve

The Guimaras Environment of Natural Resources Office (GENRO) provided a Habitat Assessment and Fish Visual Census Training to local fisher men, government agency personnel, and local Barangay leaders for communities with CBMPAs within the Municipality of Jordan. This provided an opportunity for local community members and stakeholders involved in the management of CBMPAs to gain skills in conducting habitat assessments and fish census surveys in their coastal and marine environments.

A team that included government agency personnel, volunteer fisherfolk and I collected the biological data used in this analysis. The results of these surveys were used in this study to determine if there had been improvements in the ecological condition of the CBMPA or if there was an increase in the species targeted for conservation. While I assisted in the surveys for Balcon Marine Protected Area and Lawi Marine Reserve, I did not participate in the assessments of Apo Island Marine Reserve. I obtained the data for Apo Marine Reserve from government documents and published reports.

The following table describes the methods that were used to collect data for each bioecological component for all three CBMPA sites.

*Table 5. Methods used to collect bioecological data for the case study sites.*

Bio-ecological Component:	Methods:
Mangroves	Quadrats transects (perpendicular to shoreline) to determine percent crown cover, number of

	regeneration per square meter, average height of trees and number of species observed
Sea Grass	Quadrat transects (perpendicular to shoreline) to determine estimated percent cover and species present.
Coral Reefs	Manta Tows, Point-Intercept (parallel to shoreline) to determine percent coral cover and substrate type.
Fish Biodiversity	Fish Visual Census carried out simultaneously with the coral reef assessments and sites (parallel to shoreline) to determine fish counts and species present.
These methods were conducted under the suggestions of the Habitat Assessment Manuals provided by the USAID, FISH Philippines, and the Department of Agriculture.	

### 3.7 Scoring sustainable livelihood implementation

One of the assertions of this study is that if sustainable and alternative livelihoods for displaced fishers are included in the planning of CBMPAs, then those CBMPAs are more likely to be successful than those that do not. To determine if this assertion is true, I evaluated each case study site's CBMPA management plan and ordinance on the extent to which they included factors related to livelihoods. This sustainable livelihood component is used as my explanatory variable. I used the five criteria listed by Scoones (1998) for evaluating the MPA's commitment to sustainable livelihoods: (1) the acknowledgement of contexts, conditions and trends; (2) available livelihood resources; (3) effective institutional processes and organizational structures; (4) implementation of livelihood strategies; and (5) produced sustainable livelihood outcomes. If a community has implemented alternative livelihood programs and are gaining income from these programs, I would assume sustainable livelihood outcomes were successfully produced.

I analyzed each of the criteria qualitatively first. To simplify comparisons across the three case study sites, I used a simple 3-point system to score each criterion. For example, a plan and ordinance received a 0 if they did not mention the criterion, a 1 if they discussed it somewhat but not entirely, and a 2 if they thoroughly covered the criterion. After evaluating and scoring all of the criteria, I summed the overall scores to compare across case study sites.

### **3.8 Evaluating the overall success of each CBMPA**

Finally, I evaluated each of the three cases for their overall success as CBMPAs to serve as the dependent variable of my analysis. Each case was scored based on the following criteria suggested by Rossiter and Levine (2014): (1) increase in species targeted or improved ecological condition of the CBMPA; (2) no significant loss of income or livelihood potential for local stakeholders, or losses or incomes are balanced and improved by alternative benefits; (3) compliance by local community and stakeholder groups; and (4) perceptions of positive outcomes from the local community and stakeholder groups. Data used to analyze this included written reports, published journals and management plans that are cited in the results. Scores were designated as follows; 0 – criteria not achieved, 1 – criteria only partly achieved, and 2 – criteria fully achieved

## **Chapter 4. Results and Discussion**

The following chapter begins with the results and discussion of the MMRMB survey and the municipal budget for environmental management. Next, I present the results and discussion of each case individually including their human dimensions, livelihood framework, and overall success of CBMPAs.

#### 4.1 Survey of Board Members of the MMRMB

The MMRMB oversees the management of all marine protected areas and marine reserves throughout the Municipality of Jordan. I surveyed members of the Board at the close of my service to understand what these key stakeholders thought had the most impact on the success of CBMPAs. Table 4 shows the coded responses to the open-ended questions on the MMRMB survey. Participants could list more than one factor in response to each question. A few respondents chose not to answer every question.

When I asked what the MMRMB members how we can stop fishing illegally, most of them volunteered the response of alternative/sustainable livelihood programs (12 out of 15 responses). This is consistent with their response on the main cause of illegal fishing: 8 out of 15 thought poverty was the main cause, while only 3 out of 15 thought stricter law enforcement would help end illegal fishing. Most of the participants listed community support and participation, 10 out of 16 responses, as the most important factor affecting the success of CBMPAs, but only 2 out of the 16 mentioned sustainable funding and only one person mentioned a strong leader. When participants were asked what would influence fishers to stop fishing illegally within the CBMPA boundaries, 12 out of 15 responses included alternative livelihood programs and only 4 out of 5 responses included the need to establish stricter law enforcement. When participants were asked to provide examples of alternative livelihood programs, most of them included the establishment of ecotourism programs followed by expansion of inland agriculture/livestock livelihoods, and the provision of legal fishing gear to be used outside protected areas. Only one person suggested women's micro financing of livelihood programs.

The following are results from the MMRMB survey that was conducted at the close of my service to understand what stakeholders thought had the most impact on the success of CBMPAs. Table 5 below includes the short answer questions and responses of the MMRMB survey. Respondents could provide more than one response to each of the questions and some respondents chose not to provide a response to each of the questions.

*Table 6. Short answer open-ended questions and responses of the MMRMB survey.*

Questions:	Coded Responses

	<i>(Corresponding percentages of responses out of total)</i>
How can we influence fishers to stop fishing illegally?	<ul style="list-style-type: none"> <li>• <b>Providing alternative/sustainable livelihood programs: 12 out of 15 responses</b></li> <li>• Education and awareness: 5 out of 15 responses</li> <li>• Stricter law enforcement: 4 out of 15 responses</li> </ul>
What do you believe is the most important factor in effective Marine Protected Area Management?	<ul style="list-style-type: none"> <li>• <b>Community Support and participation: 10 out of 16 responses</b></li> <li>• Support by the LGU, GAs and other NGOs involved: 2 out of 16 responses</li> <li>• Enforcement: 2 out of 16 responses</li> <li>• Sustainable funding: 2 out of 16 responses</li> <li>• A strong and influential leader: 1 out of 16 responses</li> </ul>
What do you believe the main cause for fishers to fish illegally?	<ul style="list-style-type: none"> <li>• <b>Poverty induced: 8 out of 15 responses</b></li> <li>• Lack of education or awareness: 4 out of 15 responses</li> <li>• Lack of sustainable/alternative livelihoods: 4 out of 15 responses</li> <li>• Lack of effective law enforcement: 3 out of 15 responses</li> </ul>
What influences a community (local fisherfolk) to support the establishment of a Marine Protected Area?	<ul style="list-style-type: none"> <li>• <b>Effective management implementation and cooperation between the community and government: 7 out of 16 responses</b></li> <li>• Sense of ownership: 7 out of 16 responses</li> <li>• The spillover effect: 5 out of 16 responses</li> <li>• Access to alternative/sustainable livelihoods: 4 out of 16 responses</li> </ul>
What are successful alternative livelihood programs to offset possible immediate losses in fishing from the establishment of Marine Protected Areas and Sanctuaries?	<ul style="list-style-type: none"> <li>• <b>Ecotourism: 7 out of 14 responses</b></li> <li>• Inland agricultural/livestock livelihoods: 4 out of 7 responses</li> <li>• Provisions of legal fishing gears to be used outside protected areas: 2 out of 14 responses</li> <li>• Women's micro financing of livelihood programs: 1 out of 14 responses</li> </ul>

## **4.2 Apo Island Marine Reserve**

### **4.2.1 Background information**

Apo Island is a tiny island with an area of approximately 78 hectares located near Negros Island in the Central Visayan Region of the Philippines. Apo Island Marine Reserve serves as a model community-based marine protected area due to significant bioecological and community livelihood improvements (van Beukering et al. 2007). Interestingly, the total catch by local fishermen has remained the same prior to the establishment of the marine reserve, however fishermen no longer need to travel long distances to fish elsewhere. Fishing grounds are well stocked closer to the island providing fishermen more leisure time and generating income from alternative activities. The island has also seen drastic increases in the number of children that attend higher education due to improvements in family incomes and opportunities (Marten 2005).

The main fishing grounds are in the area surrounding the island to a distance of roughly 500 meters, an area with extensive coral reefs that reach a depth of about 60 meters. Fishermen use small, paddle-driven outrigger canoes, though a few fishermen have outboard motors on their canoes. The main fishing methods are hook and line, gill nets, and bamboo fish traps. In an effort to address destructive fishing practices and declining fish stocks, the local community and Silliman University marine biologists and social scientists initiated the process of establishing the Apo Marine Reserve. In 1982, an area of 450 meters along the shoreline and extending 500 meters out from the shore was selected by the community as a “no-take” reserve and in 1985 it was declared a Municipal Marine Reserve by Sangguniang Bayan Council of Dauin. Almost 10 years later in 1994, the Island was declared a Protected Landscape and Seascape under the National Integrated Protected Area System. Apo-island is currently co-managed by the national government and elected community members. Key stakeholders involved in the management of the CBMPA include the island leaders, the mayor of the local municipality of Dauin, and the Department of Environment and Natural Resources (DENR). According to several researchers, Apo Island is a model CBMPA; the success of Apo Island is well documented and sparked the popularity of community-based approaches in MPA establishment (Marten 2005; van Beukering et al. 2007; Horigue et al. 2012). Apo Island won the Best Management Award in a competition conducted by the Philippine Coral Reef Information Network (PhilReefs) in 1998 (Tejero 2014).

The following is a map of Apo Island and the Apo Island Marine Reserve from the Apo Island Marine Reserve Management Plan.

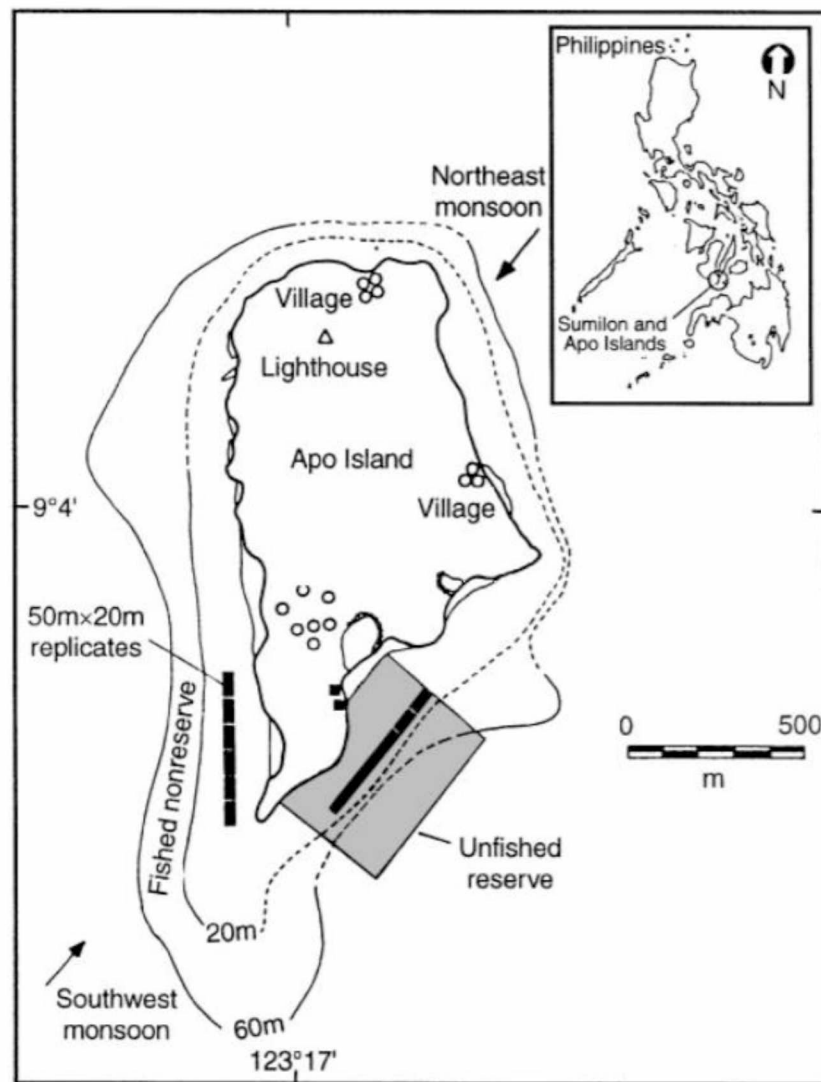


Figure 5. Map of Apo Island Marine Reserve.

#### 4.2.2 Human dimensions and capital assets of Apo Island

The following is a descriptive table of the human dimensions and assets of the community of Apo Island. This information was collected through review of government documents and management plans, published journals and reports. I included these descriptive tables to provide contextual information surrounding the human dimensions and capital assets that should be considered in planning and implementation of sustainable livelihoods.

Table 7. Human dimensions and capital assets of Apo Island Marine Reserve.

Apo Island Marine Reserve	
Human Dimensions:	Descriptions of Each Human Dimension that may Impact Management Planning and Associated Assets:
Social	<ul style="list-style-type: none"> <li>- As of the 2010 census, the island has a population of 918 and almost all of the men on the island are fishermen (Marten 2010).</li> <li>- There was a growing population of primary and secondary education students in Barangay Apo. After the establishment of the CB-MPA an associated scholarship program was established to fund educational programs (van Beukering 2007).</li> <li>- The CB-MPA has changed the role of women from mat weavers to selling t-shirts to tourists, engaging in fish trading, and fish processing (van Beukering et al. 2007).</li> <li>- Introduced family planning programs and improved access to medicine by the Barangay Council from generated Apo tourism funds (van Beukering et al. 2007).</li> <li>- Since 2006, women have been trained as bantay-dagat members and dive rangers (van Beukering et al. 2007)</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>- The overall practicing religion observed on Apo Island is Roman Catholicism.</li> <li>- The main fishing activities are traditional methods of hook and line, gill nets, and bamboo fish traps (Marten 2005).</li> <li>- Barangay Apo celebrates multiple fiestas annually to honor heritage, religious holidays, and historical traditions (van Beukering et al. 2007).</li> </ul>
Political	<ul style="list-style-type: none"> <li>- DENR argued that the area was highly political and there is a concern about the collection of user fees if management were transferred back to the community (van Beukering et al. 2007).</li> <li>- The community expressed interest in hiring teachers for environmental education dissemination, however due to political reasons, this was not in the management framework, thus is not implemented (van Beukering et al. 2007).</li> <li>- Professor of Anthropology at the University of the Philippines Visayas has reported that in Apo Island, the political power is limited to certain families. Although wanted by the local people, there has not been an election at the barangay level for more than ten years because the current political system in place does not allow it (van Beukering et al. 2007).</li> <li>- Originally the Marine Management Council (MMC) chaired by the Barangay Captain and composed of the Apo community, was the original community-based managing body. However, currently the role of the MMC has been drastically reduced with the establishment of the Protected Area Management Board (PAMB); mainly managing the community building on the sanctuary site, receives donations for community projects, and does not meet on a regular basis (van Beukering et al. 2007).</li> <li>- After declared as a National Marine Protected Area, Apo Island Marine Reserve is currently managed by the Protected Area Management Board (PAMB) that consists of representatives of the DENR Executive Director, Provincial Planning and Development Officer, the mayor of the municipality of Dauin, Barangay Captain of Apo, and representatives</li> </ul>



	from various NGOs such as POs and Silliman University (van Beukering et al. 2007).
Economic	<ul style="list-style-type: none"> <li>- Fishing is still the main livelihoods for most families on Apo Island. Most families fish for their own consumption and sell their surplus to compradors (traders). The price of fish is determined by the comprador based on the prevailing market price (van Beukering et al. 2007).</li> <li>- Prior to the establishment of the CB-MPA, activities on the island were limited to fishing, vegetable farming, food processing (i.e. fish frying by women) and traditional mat weaving (van Beukering et al. 2007).</li> <li>- Bantay-dagat or sea wardens are in charge of policing, collecting fines and are paid a monthly honorarium with revenue from the user fee (van Beukering et al. 2007).</li> <li>- Tourism is now the number one cash income generator for Apo households.</li> <li>- Several fishing boats have been converted to transportation boats for rental by tourists (van Beukering et al. 2007).</li> <li>- Apo Island Women's Association (AIWA) currently sell t-shirts and other souvenir paraphernalia to tourists (van Beukering et al. 2007).</li> <li>- Barangay Apo also received assistance from international NGOs for the construction and development of a bakeries and cafes (van Beukering et al. 2007).</li> <li>- One of the biggest contributors to greater welfare is the remittance of family members working in big cities and especially those working abroad (van Beukering et al. 2007).</li> <li>- The Barangay Apo LGU collects a snorkeling/diving fee that is used to finance a diesel generator that supplies electricity to every house in the island's main village during the evening (Marten 2005).</li> <li>- Barangay Apo has a locally operated women's credit union and a women's association for selling souvenirs to tourists (Marten 2005).</li> <li>- The PAMB has recommended that more families offer locally owned bed and breakfasts so that resorts do not monopolize the prospective accommodation revenue (van Beukering et al. 2007).</li> </ul>

#### 4.2.3 Sustainable livelihood scores and justifications for the Apo Island Marine Reserve

The following is a table of the sustainable livelihood scores and the reason I gave each criterion the specified score of the Apo Island Marine Reserve. Data used for analysis within this scoring framework was based on written reports, published journals, and management plans which are cited within the table.

*Table 8. Scores for the sustainable livelihood programs of Apo Island Marine Reserve.*

<b>Apo Island Marine Reserve</b>
<i>Scores were given as follows: 0 – not at all achieved, 1 – only partly achieved, 2 – fully achieved</i>

Criteria for Sustainable Livelihood Development	Score	Justification for the Score
1. Acknowledgement of contexts, conditions, and trends	2	Several of the livelihood programs have been developed to address the local context, conditions and historical trends of the community of Apo Island based off of the human dimensional information. For example, the lack of sustainable energy sources for Apo Island was addressed through directing funds generated by tourism fees for the Island's diesel-powered generator (van Beukering et al. 2007).
2. Available livelihood resources	2	Van Beukering et al. (2007) surveyed fisherfolk and 47% reported a diversification in livelihoods after the establishment of the CBMPA. The new livelihood activities include land-based activities, aquaculture, fish processing, salt production and tourism related income generating activities (Tejero 2014; van Beukering et al. 2007).
3. Institutional processes and organizational structures	1	The involvement of People Organizations in the implementation of livelihood programs has produced positive impacts throughout the community such as wives belonging to a Women's Organization that sells souvenirs and t-shirts to tourists (van Beukering et al. 2007). Originally the Marine Management Council (MMC) chaired by the Barangay Captain and composed of the Apo community, was the original community-based managing body. However, currently the role of the MMC has been drastically reduced through the implementation of the Protected Area Management Board (PAMB). The MMC mainly manages the community building on the sanctuary site, receives donations for community projects, and does not meet on a regular basis (van Beukering et al. 2007). As a result, a score of 1 rather than 2 because of the lack of involvement and strengthening of the original MMC to be more involved in the development of sustainable livelihood programs and overall management of the Apo Island Marine Reserve.
4. Livelihood strategies	2	The PAMB through the development plan for local tourism enterprises and amendments to the existing Apo Island Marine Reserve Management plan outlines livelihood strategies and actions available for user groups (Abesamis et al. 2006). These livelihood strategies include a user's fee system where 75% of the revenue generated is distributed back to the local community (Marten 2005). Other livelihood programs under the PAMB include swine dispersal, mangrove reforestation along the coast, and the creation of fish ponds were introduced (van Beukering et al. 2007).

5. Sustainable livelihood outcomes	2	Tourist and diving fees have financed substantial improvements for the island's educational institutions, garbage collection at a landfill on the mainland, maintenance of electrical power, and improvements in water supply (Marten 2005). In addition, fisher men have reported increases in fish catch from the CBMPA's spill-over effect (van Beukering et al. 2007).
<b>Total Score (out of 10 possible)</b>	<b>9</b>	

Overall, the implementation of sustainable livelihoods for the community of Apo Island Marine Reserve obtained a high score. The striking abundance and diversity of marine organisms around the island has attracted coral reef tourism and improved the overall livelihood opportunities for the Apo Island Community (Cadiz and Calumpang 2000). The island has two small hotels and a dive shop, which employs several dozen island residents. In addition, diving tour boats come daily from the nearby mainland. A few island households take tourists as boarders, and some of the women have tourist related jobs such as catering for the hotels or hawking Apo Island T-shirts. The local government unit of Apo Island collects a snorkeling/diving fee, which has been used to finance a diesel generator that supplies electricity to every house in the island's main village during the evening. The tourist fees have also financed substantial improvements for the island's elementary school, garbage collection for disposal at a landfill on the mainland, and improvements in water supply (Marten 2005). Tourist revenue has also provided family income and educational scholarships (from one of the island hotel owners) to finance more than half the island's children to attend high school on the adjacent mainland, and many of these students continue to attend universities. Almost all university graduates and many high school graduates stay on the mainland with a job that allows them to send money to their family back on the island. The increase in fish catch from the spill-over effect has caused families to stop forcing their children to work fishing to increase catch harvested and thus has indirectly increased rates of children from Barangay Apo attending secondary education (van Beukering et al. 2007).

Institutional frameworks and their ability to provide effective services and programs to greater communities was observed to be key in the overall development of sustainable livelihoods. For example, Apo Island's institutional framework was observed to lack breadth and equitable representation of the greater community which had an influence on the overall score sustainable livelihood development. Nevertheless, because of their successful sustainable livelihood framework, Apo Island has served as a model for fishing communities throughout the Philippines (Marten 2005).

#### 4.2.4 Overall success of CBMPA scores and justification for the Apo Island Marine Reserve

The following is a table of the overall success of CBMPA scores based on key factors. Each score is provided with a brief justification. Data used for this analysis was based on written reports, published journals and management plans as cited in the table.

*Table 9. Scores for the overall success of the Apo Island Marine Reserve CBMPA.*

<b>Apo Island Marine Reserve</b>		
<i>Scores were given as follows: 0 – not at all addressed, 1 – only partly addressed, 2 – fully addressed</i>		
<b>Factors Influencing the CBMPA Success (Rossiter and Levine 2014):</b>	<b>Score:</b>	<b>Justification for the Score:</b>
1. Increase in species targeted or improved ecological condition in the MPA	2	Since the establishment of the CBMPA, an increase in fish abundance and density has been observed within the no-take portion of the CBMPA (van Beukering et al. 2007). Survey data has also shown a steady increase of coral cover over a ten-year interval (Marten 2005). However, recent research has shown that the increasing population and ecotourism activities around the island have negatively impacted the marine resources in some minor instances. Impacts include; the degradation of the marine environment and its biodiversity through unregulated anchorage and denudation of Apo Island's vegetative cover through the conversion of forests/agriculture land into residential areas and tourism-related facilities (Tejero 2014).
2. Income or livelihood of community unharmed or improved	2	As the popularity of Apo Island with many conservation programs and donor organizations increased, the CBMPA has had indirect benefits in the diversification of livelihoods while also continuing to support 90% of community members that engage in fishing for subsistence and income generation (van Beukering et al. 2007).
3. Compliance by local community and stakeholder groups	2	Prior to the establishment of the Apo Marine Reserve, fishermen reported using destructive gears and methods for harvest. Now fishermen have voiced their commitment to keeping their island's fishing grounds sustainable. The spirit of local initiative that was taken to implement the CBMPA has extended to developing Apo's infrastructure and educational opportunities (Marten 2005).
4. Perception of positive outcomes from the local community and stakeholder groups	1	Community members voiced their concerns over the distribution of power and benefits from the protected area claiming that the owners of resorts and dive centers are reaping most of the benefits from the protected area. In all the focus group discussions and key informant interviews, there was strong support for the Apo Marine Reserve by the community due to observed increases in fish abundance

		inside and outside the CBMPA's boundaries (van Beukering et al. 2007). The negative and suspicious sentiments felt by community members stated above lead me to score the perceptions of positive outcomes from the local community to receive a 1, rather than a 2.
<b>Total Score (out of 8 possible)</b>	<b>7</b>	

Apo Island Marine Reserve is regarded today as one of the most successful CBMPAs in the Philippines (Marten 2005). Today there are positive signs of better standards of living in the Apo community. Measurable evidence can be found in fish catch data. It was reported that fish yields of 19-25 t/km<sup>2</sup>/year have been maintained for the past two decades (1980-2001). Catch per unit effort for hook and line fishing has increased from a mean of 0.15 kg/man/hr in 1980-81 to 1-2 kg/man/hr in the period 1997-2001 (Marten 2005).

Throughout Barangay Apo and surrounding the boundaries of the Apo Marine Reserve include signs and posters describing the restrictions and referencing the ordinance (Russ and Alcala 1999). These informational signs increase the community's awareness in regards to the regulations and restrictions of the Apo Island Marine Reserve. The establishment of the CBMPA has lead to a change in the livelihoods of community members. Prior to the development of tourism, fish drying was a common activity for women, but because of the greater economic incentives in tourism, this livelihood has ceased (van Beukering et al. 2007).

Although, while the national sanctuary program has reinforced the status of the Apo Island sanctuary and provides networking benefits, it also means the island's fishermen do not currently have complete control of sanctuary management or funds that come from diving and snorkeling fees (Marten 2005). Prior to the establishment of the PAMB, the community of Apo Island expressed their confidence in the capability of the Marine Management Committee (MMC) to manage the reserve (Alcala 2000). Further, prior to the establishment of the Apo Island Marine Reserve, the neighboring District III Barangay opposed the establishment of the CBMPA due to believing it would deprive them of their livelihoods (van Beurkering et al. 2007). Regardless, community members continue to voice their pride in the attention Apo Island Marine Reserve receives from many managers, researchers and conservation programs throughout the Philippines (van Beukering et al. 2007). A key aspect to the success of Apo Island Marine Reserve has been their implementation and planning of sustainable livelihood programs for displaced fishermen and families throughout the community of Apo Island.

### **4.3 Balcon Marine Protected Area**

#### **4.3.1 Background information**

In June 2011, the community of Barangay Balcon Mellieza and Barangay Maravilla with the facilitation of a US Peace Corps Volunteer and the Municipal Agriculture Office of Jordan, established a Marine Protected Area of about 16.25 hectares in the coastal waters of Sitio Singcalang and Sitio Timbad to allow corals to recover and fish populations and biodiversity to increase, to provide for a healthier marine habitat, increase in fish catch for local fishermen and a subsequent increase in the standard of living for the affected communities. Sitio Sincalang of Barangay Balcon Melliza oversees the management of the Balcon MPA and is directly associated with the impacts of the Balcon MPA. In 2017 assessments, the percentage of observed living bottom substrate was 85% and the percentage of observed non-living substrate was 14%. During the establishment of the Balcon MPA, a guard house and community center were constructed that overlooks the boundaries of the MPA. Located beside the guard house is a demolished day-care center that the community of Sincalang is interested in reviving given the funding opportunity. Although not directly associated with the boundaries of the Balcon MPA, fishermen from Balcon Maravilla have reported observing positive impacts associated with the spillover effect from the Balcon MPA. Situated at the western coast of the Municipality of Jordan, the Balcon MPA faces the Iloilo Strait. In 2015, many fishermen reported the increase in siltation along the northwestern coast due to commercial dredging activities in efforts to create a deep channel for large ships and barges that dock in the Iloilo Port (Balcon MPA Biological Assessments, Appendix). The current land use practices occurring in Iloilo City have direct impacts on the northwestern coastal zones of the Province of Guimaras such as the large amounts of solid waste and nutrient loading that wash up on shore (Balcon MPA Management Plan).

The following is a map of the terrestrial and aquatic zones of Barangay Balcon Maravilla and Barangay Balcon Melliza from the Balcon Marine Protected Area Management Plan. The red zone identifies the Balcon Marine Protected Area.

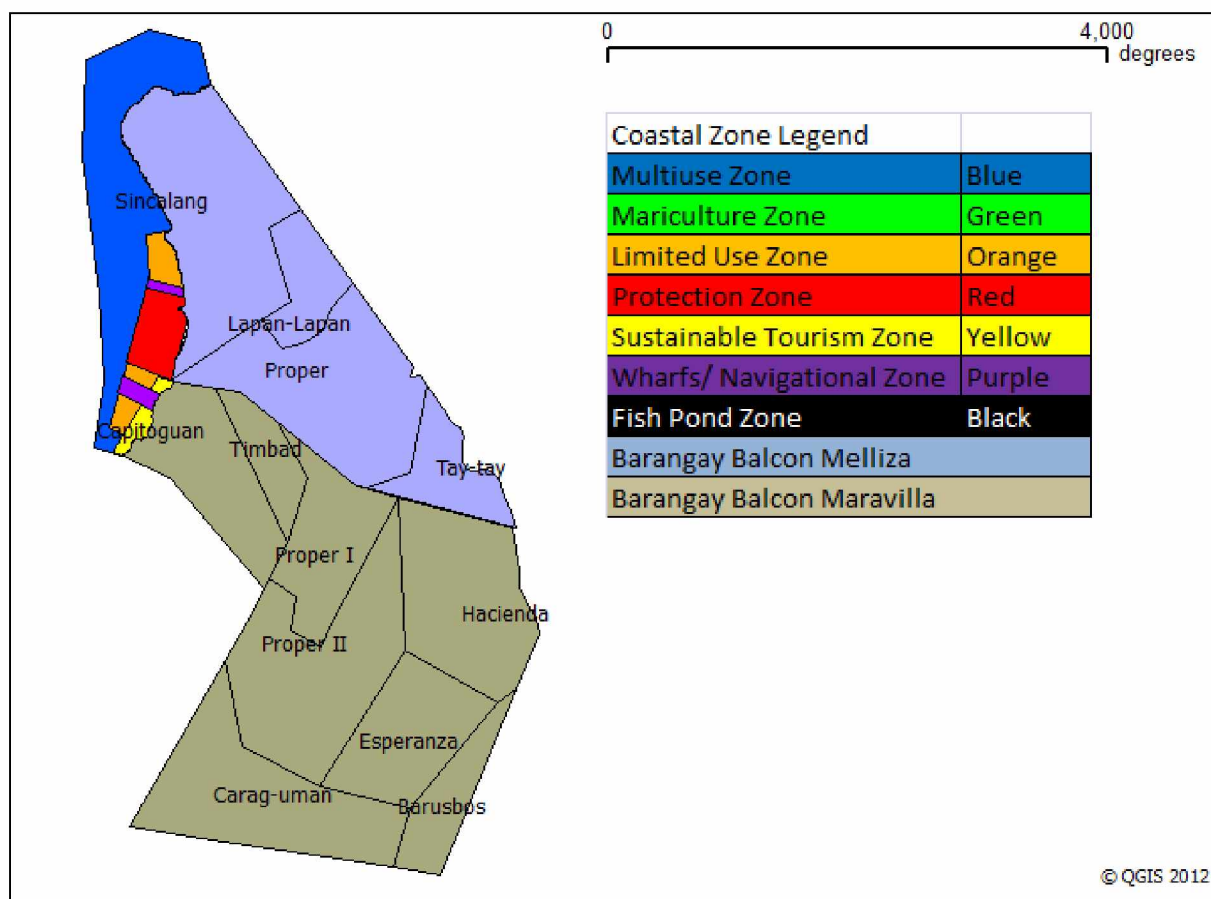


Figure 6. Map of the Balcon Marine Protected Area.

#### 4.3.2 Human dimensions and capital assets of Barangay Balcon Melliza and Barangay Balcon Maravilla

The following is a descriptive table of the human dimensions and assets of the communities of Barangay Balcon Melliza and Barangay Balcon Maravilla associated with the Balcon MPA. This information was collected through review of government documents and management plans, reports, and observations in the field. I included these descriptive tables to provide contextual information surrounding the human dimensions and capital assets that should be considered in planning and implementation of sustainable livelihoods.

Table 10. Human dimensions and capital assets of Balcon Marine Protected Area.

Balcon Marine Protected Area	
Human Dimensions:	Descriptions of Each Human Dimension that may Impact Management Planning and Associated Assets: <i>(Based on data collected)</i>
Social	<ul style="list-style-type: none"> <li>- The Sincalang Fisherfolk Association is currently active and meets on a monthly basis (Balcon FA Meeting Minutes).</li> <li>- Barangay Balcon Melliza and Barangay Maravilla are neighboring coastal barangays in Jordan, Guimaras (Balcon MPA Management Plan).</li> <li>- As of a 2014 census, Barangay Balcon Melliza has 303 households and a population of 1,483. Barangay Balcon Maravilla has 479 households and a population of 2,179 (Balcon MPA Management Plan).</li> <li>- As of 2016, Barangay Balcon Melliza has 122 registered fishermen. The majority of these fishermen report that they travel outside their barangay waters for their fish catch (Balcon MPA Management Plan).</li> <li>- Presence of Balcon Melliza and Balcon Maravilla Elementary School, Jordan National High School and Sitio Sincalang Pre-School (Province of Guimaras 2012).</li> <li>- Active Women's Association that meets on a bi-weekly basis (Province of Guimaras 2012).</li> <li>- Active Senior Citizen Association that meets quarterly per year (Province of Guimaras 2012).</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>- The major religion of Barangay Balcon Maravilla and Balcon Melliza is Roman Catholicism. Prior to the start of all meetings an opening prayer is performed (Province of Guimaras 2012).</li> <li>- Barangay Balcon Maravilla and Balcon Melliza hold two Barangay Festivals every year and is an active participant in the Annual Provincial Manggahan Festival celebrating all communities of the Province through the exposition of art, culture, agriculture, heritage sites, tourism sites, local businesses, music, sports, and traditions throughout the Province of Guimaras. The Barangays are also an active participant in the annual Municipality of Jordan's Foundation Day Festival (Province of Guimaras 2012).</li> <li>- The community of Sitio Sincalang maintains cultural traditions of crafting artisanal bangkas and fishing gears (Informal Interviews).</li> </ul>
Political	<ul style="list-style-type: none"> <li>- The newly elected President of the Sincalang Fisherfolk Association is very active in all CRM related activities, attends all trainings and workshops, and exhibits leadership in project implementation (Sincalang FA Meeting Minutes).</li> <li>- The Barangay Captain of Balcon Maravilla has expressed interest in supporting all CRM related activities, programs, and projects (Sincalang FA Meeting Minutes).</li> <li>- The Barangay Captain of Balcon Melliza has expressed concern in the sustainability of livelihood programs and CRM projects associated with the Balcon MPA (Sincalang FA Meeting Minutes).</li> <li>- There is a current active member of the Municipal Fisheries and Aquatic Resources Management Council representing Sitio Sincalang, Balcon Melliza (MMRMB Meeting Minutes)</li> </ul>



	<ul style="list-style-type: none"> <li>- The current Mayor of Jordan is supportive of the Lawi Marine Reserve and has expressed in the MMRMB Meetings he will pass future management plans and ordinances pertaining to the Lawi Marine Reserve (MMRMB Meeting Minutes).</li> <li>- The Mayor of Jordan has been assigned as the Chair for the MMRMB that oversees all management and activities of MPAs throughout the Municipality of Jordan (MMRMB Manual of Operations – Appendix ____).</li> <li>- The Current Municipal Mayor of Jordan has a background in business and engineering and has interests in capital investments and development (Informal Interviews).</li> <li>- The current Chair of Agriculture of the Sangguinang Bayan Council is actively involved and supportive of all CRM activities throughout the Municipality of Jordan. Through attendance and active participation in many of the CRM events; the SB Member Chair on Agriculture is knowledgeable of the goals of the communities and current conservation objectives (MMRMB Meeting Minutes – Appendix ____ ; Lawi Municipal Marine Reserve Public Hearing Minutes – Appendix ____).</li> </ul>
Economic	<ul style="list-style-type: none"> <li>- The Province of Guimaras sells locally made products throughout the Island at major centers of commerce including in resorts, at major wharfs and ports, and at the Provincial Capital (Province of Guimaras 2012).</li> <li>- Fruits, vegetables, livestock, and fish from Barangay Lawi are sold at the Central Provincial Market (Province of Guimaras 2012).</li> <li>- Throughout Barangay Balcon Melliza and Balcon Maravilla there are privately owned sari-sari shops managed out of residents' homes (Informal Interviews, Lawi PCRA Minutes).</li> </ul>

#### 4.3.3 Sustainable livelihood scores and justifications for the Balcon Marine Protected Area

The following is a table of the sustainable livelihood scores and the reason I gave each criterion the specified score of the Balcon Marine Protected Area. Data used for analysis within this scoring framework was based on written reports, management plans and observations in the field which are cited within the table.

*Table 11. Scores of the sustainable livelihood programs of the Balcon Marine Protected Area.*

Balcon Marine Protected Area		
<i>0 – not at all achieved, 1 – only partly achieved, 2 – fully achieved</i>		
Criteria for Sustainable Livelihood Development:	Score:	Justification for the Score:
1. Acknowledgement of contexts,	0	The management planning process and produced Balcon MPA management plan did not acknowledge existing contexts, conditions and historical trends of

conditions, and trends		the Balcon Melliza and Balcon Maravilla communities (Balcon MPA Management Plan and Ordinance).
2. Available livelihood resources	2	The Balcon Marine Protected Area has a variety of available livelihood resources accessible to the communities of Balcon Melliza and Balcon Maravilla resulting in a score of 2. Within Barangay Balcon Melliza and Balcon Maravilla the following available livelihood resources have been identified through community consultation and assessment: sustainable vegetable and fruit production, livestock production, food catering services, motor bangka boat rentals, user's fee collection system (for entry of the MPA Guard House, and Sincalang Beach Cabanas), local craft making, potential coral gardening sites, snorkel gear rentals, kayak rentals, and other eco-tourism related activities (Balcon MPA Management Plan and DENR Balcon MPA Livelihood Planning Meeting Minutes)
3. Institutional processes and organizational structures	1	The recently established Municipal Marine Reserve Management Board (MMRMB) of Jordan and reestablished Fisherfolk Association has yet to accomplish stated goals and objectives outlined in their Manual of Operations, specifically that of increasing livelihood diversity and opportunities for residents of Jordan (MMRMB Manual of Operations). In addition, local government agencies have not increased funding for livelihood development associated with CBMPAs. As a result, the current institutional processes and organizational structures associated with the sustainable livelihood development for Barangay Balcon Melliza and Balcon Maravilla has received a score of 1 rather than a 2.
4. Livelihood strategies	1	The Balcon Marine Protected Area Management Plan and Ordinance does not provide recommended livelihood strategies that are diverse, achievable, or realistic. Although the implementation of ecotourism and livelihood opportunities are stated as a goal, the management plan lacks a formulated a strategic livelihood action plan with a budget, timeline, and set objectives (Municipal Marine Reserve Management Plan and Ordinance). Due to the lack of any livelihood strategies and planning achieved, a score of 1 rather than 2 was given.
5. Sustainable livelihood outcomes	0	The communities of Barangay Balcon Maravilla and Balcon Melliza have not gained sustainable livelihood outcomes. Although some fisherfolk have reported increases in fish catch, coral cover, and abundance of fish; biological surveys have yet to confirm these observations (Informal Interviews; MMRMB Meeting Minutes).

<b>Total Score (out of 10 possible)</b>	<b>4</b>	
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Overall the implementation of sustainable livelihood programs associated with the Balcon Marine Protected Area has yet to reach its full potential. In fact, the Department of Environment and Natural Resources (DENR) facilitated the strengthening of the Sincalang, Balcon Melliza Fisherfolk Association (FA) and the Balcon Maravilla Fisherfolk Association to commence initial planning stages for the implementation of alternative livelihood projects after the CBMPA management plan was approved (FA Meeting Minutes). During this livelihood planning workshop, several livelihood ideas were discussed including the implementation of a coastal day-care center, the construction of a community display center, the selling of crafts and food items, and the restoration of the MPA Guard house to serve as a community center and snorkeling gear rental location (DENR Balcon MPA Livelihood Planning Meeting Minutes).

Further, government agencies throughout the Province of Guimaras have yet to provide more funding for sustainable livelihood development pertaining to CBMPAs. Financing livelihood initiatives has been made possible only through ‘special projects’ requests and funding allocations, causing the implementation of alternative livelihood programs to remain a challenge (MMRMB Meeting Minutes). For CBMPA management plans that lacked a built-in sustainable livelihood framework, local government units were forced to seek out quick, broad and temporary alternative income generating programs for the fishing communities to address losses from restricted fishing practices.

#### 4.3.4 Overall success of CBMPA scores and justification for the Balcon Marine Protected Area

The following is a table of the overall success of CBMPA scores based on influencing factors. Each score is provided with a brief justification. Data used for this analysis was based on monitoring and evaluation reports, management plans, and observations in the field as cited in the table.

*Table 12. Scores of the overall success of the Balcon Marine Protected Area CBMPA.*

<b>Balcon Marine Protected Area</b>		
<i>Scores were given as follows: 0 – not at all addressed, 1 – only partly addressed, 2 – fully addressed</i>		
<b>Factors Influencing the CB-MPA Success (Rossiter and Levine 2014)</b>	<b>Score:</b>	<b>Justification for the Score</b>

1. Increase in species targeted or improved ecological condition in the MPA	1	The percent cover of living versus non-living substrate was observed to improve since past assessments recorded in 2016 and 2015. However, the transect lines of each assessment study were placed in different locations and fisherfolk from both communities reported observing increases in siltation from commercial dredging activities of the Iloilo Strait to negatively impact the coral reef within the core zone of the Balcon MPA (Sincalang FA Meeting Minutes). As a result, a score of 1 rather than a 2 was given.
2. Income or livelihood of community unharmed or improved	0	The Balcon MPA site has yet to be developed as a tourist destination. The Balcon MPA Guard House and community center, coral-reefs, and beach area are not readily accessible to visitors (MMRMB Meeting Minutes). There is currently no user's fee system or tourism livelihood program in place for Barangay Balcon Melliza and Balcon Maravilla to generate income (DENR and Sincalang FA Livelihood Meeting Minutes; DENR and Balcon Maravilla FA Livelihood Meeting Minutes).
3. Compliance by local community and stakeholder groups	1	Community members have reported several illegal fishing instances within the core zone of the Balcon MPA due to the initial poorly defined MPA boundaries (Sincalang FA Meeting Minutes). However, the Sincalang Fisherfolk Association has implemented a community-based watch system and process of reporting activities occurring within the core zone of the MPA (Balcon MPA Management Plan). Due to the continued illegal fishing occurring within the core zone of the CB-MPA by community members unaware of the MPA's boundaries, a score of 1 rather than 2 was given.
4. Perception of positive outcomes from the local community and stakeholder groups	1	Several, yet not all, fisherfolk association members were observed to have an understanding of the Balcon MPA's environmental objectives and maintain a positive perception of the benefits the Balcon MPA has the ability to produce (Sincalang FA Meeting Notes). The Balcon fisherfolk associations have only been recently reestablished and strengthened. Due to members of the community of Barangay Balcon Maravilla lacking complete understanding and awareness of the Balcon MPA's objectives, positive outcomes, and delineation; a score of 1 rather than a 2 was given.
<b>Total Score:</b>	<b>3</b>	

The overall success of the Balcon Marine Protected Area in achieving its goals and objectives is relatively low. Informal interviews with local fishers and FA members in the community of Sitio Sincalang, reported observations in the increase of fish catch, coral cover, and fish abundance within the Balcon MPA (Informal Interviews, Sincalang FA Meeting Minutes). However, the communities of Balcon Maravilla and Balcon Melliza still lack well established alternative livelihood programs for the

displaced fishermen. Livelihood program planning has commenced only recently by the Provincial DENR well after the CBMPA management plan and ordinance were adopted and passed.

The Balcon MPA has implemented an effective informal community-watch program. The President of the FA explained that at any given time of the day, community members near or in the core zone of the MPA monitor surrounding activities, check for signs of improved fish and coral abundance, and inspect standing structures. This system has slightly enhanced the compliance of the local community with the Balcon MPA regulations and has increased the perception of positive outcomes. However, not all community members are aware and understand the Balcon MPA's purpose and importance.

#### **4.4 Lawi Marine Reserve and Sanctuary**

##### **4.4.1 Background information**

The Municipal Marine Reserve in Barangay Lawi is geographically situated along the coastline of Barangay Lawi, within the Municipality of Jordan off the coast of the Island of Guimaras facing the Panay Gulf. Inside the Lawi Marine Reserve's boundaries are nesting grounds of green sea turtles, extensive coral reef habitat, sea grass beds, and lush mangrove forests. The area is mutually used by the Municipalities of Jordan, Sibunag and Nueva Valencia as they all share the maritime boundary. In 1997 Municipal Ordinance No. 97-007 was adopted, legally declaring the Marine Sanctuary as a protected site for 'All Marine Life', including sea turtles. The marine reserve encompasses the body of water surrounding Sitio Lusay and Ave Maria Islet with a radius of 1 kilometer from its coastline. The proposed no-take core zone has an area of approximately 100 hectares covering the same surroundings of Sitio Lusay and Ave Maria as specified in the restricted zone. The area was initially established by the community to protect and restore critical mangrove forests, sea grass beds, and coral reef habitat in efforts to increase fish catch through the spill-over effect. The Lawi Marine Reserve's Management Plan and Ordinance outline the following activities strictly prohibited within the core zone of the Lawi Marine Reserve: waste disposal, cutting of vegetation, conduct of scientific research and educational activities without permit, fishing, collection of rare and endangered species, unauthorized entry in the municipal marine reserve core zone, gathering and collection of any fishery resources, stealing and destroying of marker buoys and signages, and the obstruction of law enforcement.

The following is a map of the Lawi Marine Reserve outlined in red and critical associated locations I created.



Figure 7. Map of the Lawi Marine Reserve.

#### 4.4.2 Human dimensions and capital assets of Barangay Lawi

The following is a descriptive table of the human dimensions and assets of the community of Barangay Lawi associated with the Lawi Marine Reserve. This information was collected through review of government documents and management plans, reports, and observations in the field. I included these descriptive tables to provide contextual information surrounding the human dimensions and capital assets that should be considered in planning and implementation of sustainable livelihoods.

Table 13. Human dimensions and capital assets of the Lawi Marine Reserve.

Lawi Marine Reserve	
Human Dimensions:	Descriptions of Each Human Dimension that may Impact Management Planning and Associated Assets: <i>(Based on data collected)</i>
Social	- Total number of households (2014): 326, total number of families (2014): 375, and the total population (2014): 1,605 (Municipal Marine Reserve Management Plan)

	<ul style="list-style-type: none"> <li>- Current functioning Senior Citizen PO with a small budget for events and activities (Provincial Government of Guimaras 2012)</li> <li>- Current re-established Fisherfolk PO without a budget (Lawi FA Meeting Minutes)</li> <li>- Presence of Lawi Elementary School and Sta. Teresa Elementary School (Provincial Government of Guimaras 2012)</li> <li>- According to 2015 records, in Barangay Lawi there are 216 registered fisherfolks, 83 licensed fisherfolks, 39 fish vendors and 9 fish cage owners recognized under the Municipal Agriculture Office of Jordan (Municipal Marine Reserve Management Plan).</li> <li>- Small community of Indigenous Peoples who have special rights to harvest sea turtles (Provincial Government of Guimaras 2012).</li> <li>- A small family currently resides within in the Ave Marie Islet (Core Zone Area) of the Lawi Marine Reserve and sells snacks and refreshments to tourists that frequent the area (Informal Interviews)</li> <li>- There are several private beach resort and home owners located within the boundaries of the Lawi Marine Reserve (Lawi FA Meeting- Appendix).</li> <li>- The current re-established Fisherfolk PO comprises of members that are also farmers and craftsmen (Attendance Sheet of Lawi FA Meeting).</li> <li>- Lawi Elementary School teachers and administrators have expressed interest in involving students in future coral gardening projects, beach clean-ups, and CRM awareness camps and courses (Barangay Lawi Environmental Education Session, Appendix).</li> <li>- The current re-established Fisherfolk Association has expressed interest in implementing a user's fee system, establishing a rental system for snorkeling and other recreational gear to tourists, and creating a community-owned/managed ecotourism program (Lawi FA Meeting Minutes, Appendix).</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>- The major religion of Barangay Lawi is Roman Catholicism. Prior to the start of all meetings an opening prayer is performed (Provincial Government of Guimaras 2012).</li> <li>- Barangay Lawi makes use of the green sea turtle as their logo and cultural heritage icon (Municipal Marine Reserve Management Plan). Within the core zone of the Lawi Marine Reserve, species of green sea turtles have been observed to nest on the eastern beach areas. From September to November of 2015, a nine-week monitoring program of a green sea-turtle nest documented the hatching event of a total of 137 green sea turtle hatchlings, all of which were released safely into the ocean (Municipal Marine Reserve Management Plan).</li> <li>- Barangay Lawi holds two Barangay Festivals every year and is an active participant in the Annual Provincial Manggahan Festival celebrating all communities of the Province through the exposition of art, culture, agriculture, heritage sites, tourism sites, local businesses, music, sports, and traditions throughout the Province of Guimaras. Barangay Lawi is also an active participant in the annual Municipality of Jordan's Foundation Day Festival (Provincial Government of Guimaras 2012). Fiestas and festivals throughout the province provide for venues to sell produce, crafts, and other goods produced by locals of Barangay Lawi (Lawi FA Meeting Minutes).</li> </ul>
Political	<ul style="list-style-type: none"> <li>- Current Barangay Captain is very involved in the management process and enforcement activities of the Lawi Marine Reserve. The Barangay Captain in an interview has expressed interest in establishing a locally owned eco-tourism program and user's fee system (Informal Interviews).</li> <li>- The current Mayor of Jordan is supportive of the Lawi Marine Reserve and has expressed in the MMRMB Meetings he will pass future management plans and ordinances pertaining to the Lawi Marine Reserve (MMRMB Meeting Minutes).</li> <li>- The Mayor of Jordan has been assigned as the Chair for the MMRMB that oversees all management and activities of MPAs throughout the Municipality of Jordan (MMRMB Manual of Operations).</li> <li>- The Current Municipal Mayor of Jordan has a background in business and engineering and has interests in capital investments and development (Informal Interviews).</li> <li>- The current Chair of Agriculture of the Sangguniang Bayan Council is actively involved and supportive of all CRM activities throughout the Municipality of Jordan.</li> </ul>

	Through attendance and active participation in many of the CRM events; the SB Member Chair on Agriculture is knowledgeable of the goals of the communities and current conservation objectives (MMRMB Meeting Minutes; Lawi Municipal Marine Reserve Public Hearing Minutes).
Economic	<ul style="list-style-type: none"> <li>- Privately-owned Tourism Island Hopping Boats frequent the core zone of the Lawi Marine Reserve Daily (Lawi Biological Assessments 2016).</li> <li>- The Lawi Pier acts as a current fish landing site, tourist destination and accessible docking location for motor bangkas (Municipal Marine Reserve Management Plan).</li> <li>- The Province of Guimaras sells locally made products throughout the Island at major centers of commerce including in resorts, at major wharfs and ports, and at the Provincial Capital (Province of Guimaras 2012).</li> <li>- Produce, livestock, and fish from Barangay Lawi are sold at the Central Provincial Market (Province of Guimaras 2012).</li> <li>- Throughout Barangay Lawi there are privately owned sari-sari shops managed out of residents' homes (Informal Interviews, Lawi PCRA Minutes).</li> <li>- The current availability of fish aquaculture through fish cage production present in the Santa Ana Bay (Provincial Government of Guimaras 2012).</li> </ul>

#### 4.4.3 Sustainable livelihood scores and justifications for the Lawi Marine Reserve

The following is a table of the sustainable livelihood scores and the reason I gave each criterion the specified score of the Lawi Marine Reserve. Data used for analysis within this scoring framework was based on written reports, management plans and observations in the field which are cited within the table.

*Table 14. Scores of the sustainable livelihood programs of the Lawi Marine Reserve.*

Lawi Marine Reserve		
<i>Scores were given as follows: 0 – not at all addressed, 1 – only partly addressed, 2 – fully addressed</i>		
Criteria for Sustainable Livelihood Development:	Score	Justification for the Score
1. Acknowledgement of contexts, conditions, and trends	0	The Lawi Marine Reserve Management Plan and Ordinance does not provide contextual information, detailed conditions of the Barangay, or historical trends livelihood measures (Municipal Marine Reserve Management Plan and Ordinance).
2. Available livelihood resources	2	Barangay Lawi has an abundance of available livelihood resources accessible to the community resulting in a score of 2. Within Barangay Lawi the following available livelihood resources have been identified through community consultation and assessment: fish cage culture, sustainable vegetable and fruit production, livestock production, motor bangka boat rentals, user's fee collection system, local craft making, potential coral gardening sites, implementation of mangrove boardwalk, snorkel gear rentals, and other eco-tourism related activities (Lawi PCRA Minutes; Municipal Marine Reserve Management Plan and Ordinance).
3. Institutional processes and	1	The Municipal Marine Reserve Management Board (MMRMB), the Lawi Fisherfolk Association, and other government agencies



organizational structures		associated with the management of the Lawi Marine Reserve has yet to accomplish goals and objectives outlined in planning processes, especially that of increasing livelihood diversity and opportunities for residents of Jordan (Province of Guimaras 2012). As a result, the current institutional processes and organizational structures associated with the sustainable livelihood development for Barangay Lawi has received a score of 1 rather than a 2.
4. Livelihood strategies	1	The Lawi Marine Reserve and Management Plan and Ordinance does not provide recommended livelihood strategies that are diverse, achievable, or realistic. Stakeholders involved in the planning of the Lawi Marine Reserve have not formulated a strategic livelihood action plan with a budget, timeline, and set objectives (Municipal Marine Reserve Management Plan and Ordinance). Only recently has the DENR commenced initial planning stages for the implementation of alternative livelihood projects (Lawi FA Meeting Minutes). Due to the lack of any livelihood strategies and planning achieved, a score of 1 rather than 2 was given.
5. Sustainable livelihood outcomes	0	The community of Barangay Lawi has not gained sustainable livelihood outcomes. Funds generated from eco-tourism activities are currently privately owned by resort and motor bangka owners of the Alubihod, Municipality of Nueva Valencia (Informal Interviews; MMRMB Meeting Minutes).
<b>Total Score (out of 10 possible)</b>	<b>4</b>	

The community of Baranagy Lawi has yet to implement sustainable livelihood programs that provide alternative income opportunities for local community members. There is currently not an equitable distribution of funds generated by current eco-tourism activities.

The management process of the Lawi Marine Reserve clearly shows complications that may arise from ignoring socio-political factors associated with the community in management planning. For example, the political agenda of supporting all development programs of the current municipal mayor of Jordan overlooked current restrictions of development within the Lawi Marine Reserve and resulted in the unauthorized construction of resort located within the core zone of the Lawi Marine Reserve. Lawi Marine Reserve Ordinance established in 1997, the construction of cement structures within the core zone of the marine reserve's boundaries is restricted. In addition, the available capital assets present within the Lawi Marine Reserve are not being considered. The presence of nesting green sea turtles for instance provides opportunities for environmental education, ecotourism programs and inclusion in cultural celebrations all of which have the opportunity of generating livelihood funds but have yet to be discussed in management planning. In an interview with the Barangay Captain, he expressed his interest in capitalizing on the current mangrove forest by implementing a mangrove boardwalk to attract visitors and further facilitate environmental education. However, current land disputes and private rights are inhibiting

the community of Lawi to develop reforestation and ecotourism programs of their mangrove forest. By overlooking information surrounding the community's human dimensions and capital assets, conflicts in implementing livelihood programs have produced challenges for the success of the Lawi Marine Reserve. A separate management plan detailing the ecotourism program of the Lawi Marine Sanctuary could have provided a more organized framework of policies and procedures for Island Hopping Tours to be more environmentally friendly and distributed equitably.

Human dimensions also need to be considered in the planning and implementation of boards and committees that will oversee the management of the CBMPA. As observed with the Lawi Marine Reserve Management Plan and the Balcon Marine Protected Area Management Plan, the Chairman for the MMRMB was designated as the Municipal Mayor. Following the elections of 2016, a Fisheries Technician explained "The current designation of the new chairman makes me extremely worried". The Municipal Mayor prior to the 2016 elections had extensive CRM knowledge pertaining to conservation activities including the request of several CRM Peace Corps Volunteers to implement programs. Alternatively, the new elected mayor did not share the same conservation objectives and focused his political agenda on economic development. As a result, serving as a chairman of the Municipal Marine Reserve Management Board shifted the paradigm and priorities for addressing current issues associated with marine protected areas. For example, rather than providing funding for building integrated partnerships and livelihood programs for sustainability, the mayor set priorities and funding to strengthen enforcement of the CBMPAs' Bantay Dagat (watch teams). "The government often does not take into account the needs and rights of our people because of its corruption – government officials for example receive a commission with every new development" (Informal Interviews).

I had the opportunity to observe and help facilitate a Participatory Coastal Resource Assessment (PCRA) Workshop that was implemented by the Guimaras Environment and Natural Resources Office for the local community of Barangay Lawi. The goal of the workshop was to generate community output that was to be used in the Lawi Marine Reserve Management Plan and Ordinance. However, brainstorming and idea sharing for the planning of alternative livelihoods were not included in the structure and agenda of the workshop. Therefore, alternative livelihood programs were not included in the Lawi Marine Reserve Management Plan.

#### **4.4.4 Overall success of CBMPA scores and justification for the Lawi Marine Reserve**

The following is a table of the overall success of CBMPA scores based on influencing factors. Each score is provided with a brief justification. Data used for this analysis was based on monitoring and evaluation reports, management plans, and observations in the field as cited in the table.

*Table 15. Scores of the overall success of the Lawi Marine Reserve CBMPA.*

<b>Lawi Marine Reserve</b>		
<i>0 – not at all achieved, 1 – only partly achieved, 2 – fully achieved</i>		
<b>Factors Influencing the CBMPA Success:</b>	<b>Score:</b>	<b>Justification for the score:</b>
<b>1.</b> Increase in species targeted or improved ecological condition in the MPA	0	The current ecological condition within the core zone of the marine protected area had not improved due to destruction of habitat from tourism related activities i.e. coral breakage from trampling, snorkeling and anchors, poor solid waste management, and the clearing of mangrove trees for the development of structures (Lawi Biomass Survey 2016). Fishermen have not reported an increase in fish catch outside the Marine Reserve resulting from the spillover effect (MFARMC Meeting Minutes).
<b>2.</b> Income or livelihood of community unharmed or improved	0	There is currently no alternative livelihood program or management plan in place for local residents from Barangay Lawi to take part in to offset losses from not fishing within the core zone. The current tourism related activities are all privately owned by resort and motor bangka owners from the Municipality of Nueva Valencia, thus the earnings tourism activities are not shared with the local residents of Barangay Lawi (MFARMC Meeting Minutes). There is currently no user's fee collection system in place for the community of Barangay Lawi to collect fees (Lawi FA Meeting Minutes).
<b>3.</b> Compliance by local community and stakeholder groups	1	The rules and regulations outlined within the Lawi Marine Reserve Management Plan have been observed to be violated. However, there are community members and local elected officials that have voiced and displayed their concern to strengthen efforts for the community to comply with the regulations of the Lawi Marine Reserve (Lawi FA Meeting Minutes). As a result of the violations to regulations of the Lawi Marine Reserve, a score of 1 rather than a 2 was given.

4. Perception of positive outcomes from the local community and stakeholder groups	1	The majority of community members and most local elected officials expressed their support and understanding of the potential benefits of the Lawi Marine Reserve (MFARMC Meeting Minutes). The Barangay Captain explained that most of the illegal fishing activity observed to occur within the Lawi Marine Reserve was done by fishermen from the neighboring Municipality of Nueva Valencia. (Informal Interview Responses). As a result of negative perceptions of community members and stakeholders generated from continued illegal fishing activity in the Lawi Marine Reserve, a score of 1 rather than 2 is given.
<b>Total Score (out of 8 possible)</b>	<b>2</b>	

The Lawi Marine Reserve has the lowest score ranking for overall success in achieving goals and objectives. Lawi continues to face challenges in increasing fish catch and coral cover as well as implementing sustainable livelihood programs. This lack of proper planning for livelihoods is due to initially ignoring information surrounding the community's human dimensions and capital assets.

Several community members of Lawi have voiced concern regarding the negative impacts on their household incomes from not being able to fish within the core zone of the marine reserve and not being able to profit from current privatized tourism activities (MFARMC Meeting Minutes). Often political officials such as the Barangay Captain and SB Chair of Agriculture may purposely ignore socio-political issues associated with land rights, privatization, and ownership to appease possible constituents in the next election if they plan to run in the following elections. This can be a critical point to consider during the management process and deciding the stakeholders in the planning stages; especially when taking into account the human dimensions is critical for developing livelihood strategies that may have implications on the overall success of the CB-MPA.

The Barangay Captain explained how many fishermen from the neighboring Municipality of Nueva Valencia were becoming frustrated with the lack of alternative livelihood programs available after fishing was prohibited in most of their Municipal Coastal Area. As a result, they fish illegally in the Lawi Marine Reserve because of its easy access. Due to the lack of a strong eco-tourism management plan for

the Lawi Marine Reserve, private business owners from Nueva Valencia also use Lawi Marine Reserve to offer environmentally damaging tourism activities.

#### 4.5 Budget for environmental management

Table 7 outlines the budget for the Municipality of Jordan's coastal resource management programs for the year 2012. I chose to include this table to understand how funding was prioritized for programs pertaining to CBMPAs.

As seen in the table, two-thirds of their funding for coastal resource management programs were allocated to the bantay Dagat for enforcement. This reveals that they see enforcement as the answer to illegal fishing. However, funds spent simply to strengthen enforcement do not address the root cause of illegal fishing. If the MMRMB surveys identified community support as the most important factor impacting the success of CBMPAs, then funds should be allocated to enhance community support through programs. Most importantly, the MMRMB surveys and literature review assert that the implementation of alternative livelihood programs for displaced fishers will influence fishers to stop illegal fishing. Thus, focusing CBMPA management and funding on Bantay Dagat operations may not necessarily improve the CBMPA's chance of being successful.

*Table 16. Budget for environmental management.*

<b><u>Program/ Projects</u></b>	<b><u>Amount allocated (Pesos)</u></b>	<b><u>Percentages</u></b>
Bantay Dagat Operations (Enforcement)	250,000.00	67%
FARMC – Livelihood Projects and Mangrove Plantation	100,000.00	27%
ICM – Coastal/River Bank Clean-up and Protection	15,000.00	4%
MMRMB – Improvement of Marine Reserve and Sanctuary	10,000.00	2.67%
Total	375,000.00	100%

For example, the Region VI Philippines Rural Development Project (PRDP) Funding program hosted a training workshop for local government units to develop project proposals for the funding of alternative livelihood programs. The PRDP proposal for the Lawi Marine Reserve for example, relied heavily on its management plan to implement alternative livelihood programs while also maintaining conservation goals and objectives. This proved difficult due to the absence of strategic livelihood

objectives and strategies outlined within the management plan which left LGU stakeholders to start from scratch without crucial socio-political background information to incorporate into planning decisions (PRDP Training Notes).

The establishment of CB-MPAs should begin with the drafting of the management plan to then be followed by the ordinance (Post 2016). However, in practice, it is often just the opposite. For example, both the Balcon Marine Protected Area and the Lawi Marine Reserve were established through ordinances prior to the completion of their management plans. Clear background information and planning could have been used effectively to avoid current socio-political issues that are hindering the success of the Lawi Marine Reserve and Balcon MPA, had the communities drafted a management plan first rather than an ordinance. Issues such as the inequitable access to the profit made by tourism related activities and the lack of alternative livelihood programs for fishers produced many challenges for the community that could have been well avoided.

The Participatory Coastal Resource Assessment (PCRA) workshop I had the opportunity to observe was conducted by GENRO in 2015, well after the Lawi Marine Reserve was established in 1997. During this PCRA, community members and Barangay officials were tasked to draft the Lawi Marine Reserve Management Plan and assess the reserve's status, impacts and boundaries. Only after the PCRA did local elected officials and community members of Barangay Lawi begin to express interest in enforcing and improving the state of the Lawi Marine Reserve by fixing/painting signs, planning meetings to implement a user fee system, and moving forward with the construction of the marine reserve guard house (Lawi PCRA Minutes). Following the PCRA, local Barangay officials and community members attended habitat monitoring training programs and fisherfolk association strengthening workshops. These workshops sparked the planning process for the implementation of alternative livelihood programs in Lawi. Once a management plan was written and included a framework for alternative livelihoods, GENRO allotted 50,000.00 pesos to fund the implementation of the programs.

#### **4.6 Cumulative Scores and Case Comparison**

Table 17 presents the cumulative scores of the sustainable livelihood programs and the overall success of the CBMPAs for the three case study sites. It is divided into “Criteria for sustainable livelihood development”, the exploratory variable and “Criteria for success of a CBMPA”, the dependent variable. As shown in the table, the first criterion is “Acknowledgement of contexts, conditions, and trends.” In this case, Apo Island received a score of 2 out of 2, while both Balcon and Lawi received zeros because their

management plans and ordinances did not include any information on the community's context, socioeconomic or bioecological conditions, and overall trends of historic fish catch, community income and demographics. In contrast, Apo Island Marine Reserve's management plan provided rich contextual information regarding the community, data surrounding the socioeconomic and bioecological status and overall historical trends. This information proved useful in creating the alternative livelihood programs that were well implemented in the community of Apo Island.

With regard to alternative livelihood resources (Criterion 2) all three cases had a score of 2 because all have excellent available resources that could be used to create alternative livelihood programs. For example, all three case study sites have outstanding bioecological resources, such as coral reefs, organized people's organizations, opportunities for sustainable agriculture, and accessibility to tourists. However, at this point, only Apo Island has taken advantage of their resources to benefit those whose livelihoods were displaced when the CBMPA was created.

*Table 17. Accumulative scores of the three case study sites.*

<b>Criteria for Sustainable Livelihood Development:</b>	<b>Apo Island Marine Reserve</b>	<b>Balcon Marine Protected Area</b>	<b>Lawi Marine Reserve</b>
1. Acknowledgement of contexts, conditions, and trends	2	0	0
2. Available livelihood resources	2	2	2
3. Institutional processes and organizational structures	1	1	1
4. Livelihood strategies	2	1	1
5. Sustainable livelihood outcomes	2	0	0
<b>SUBTOTAL</b> <i>Total Possible Points: 10</i>	<b>9</b>	<b>4</b>	<b>4</b>
<b>Criteria for Success of a CBMPA</b>	<b>Apo Island Marine Reserve</b>	<b>Balcon Marine Protected Area</b>	<b>Lawi Marine Reserve</b>
1. Increase in species targeted or improved ecological condition in the MPA	2	1	0
2. Income or livelihood of community unharmed or improved	2	0	0
3. Compliance by local community and stakeholder groups	2	1	1
4. Perception of positive outcomes from the local community and stakeholder groups	1	1	1
<b>SUBTOTAL</b> <i>Total Points Possible: 8</i>	<b>7</b>	<b>3</b>	<b>2</b>

All three case study sites scored a value of 1 for institutional processes and organizational structures. Although institutions and organizations are well established for all sites, they lacked strong support from all community members, equitable representation of all sectors of the community, and some had yet to implement programs relative to sustainable livelihoods. For example, the Apo Island Marine Reserve is primarily managed by the Protected Area Management Board which lacks community-based authority or management like that of the original Marine Management Council. Balcon Marine Protected Area and Lawi Marine Reserve are both represented by the recently established Municipal Marine Reserve Management Board that oversees all CBMPAs throughout the Municipality of Jordan. However, the MMRMB has yet to implement programs and both CBMPAs lack a localized management board on the Barangay-level.

Livelihood strategies are the steps and processes communities with CBMPAs took to establish alternative livelihood programs. Livelihood outcomes are the actual income, products and/or services that are produced through the alternative livelihood programs. Apo Island Marine Reserve has strong livelihood strategies such as craft and souvenir making, community-based ecotourism, and scholarship funds as livelihood strategies that have produced successful outcomes in the form of improvements to community incomes and opportunities. On the other hand, Balcon Marine Protected Area and Lawi Marine Reserve have only recently started the planning process for establishing alternative livelihood programs. As a result, the communities of Balcon Marine Protected Area and Lawi Marine Reserve have yet to observe livelihood outcomes.

In terms of the criteria for success (the dependent variable), the first factor is “Increase in species targeted or improved ecological condition in the MPA”. For this the three sites received scores of 2, 1, and 0. Apo Island Marine Reserve has observed an increase in the number and biodiversity of reef fish, crustaceans, coral, hydroids and turtles according to habitat assessment results. Balcon Marine Protected Area observed an increase in living coral substrate versus non-living substrate, however these results may be unreliable given that the assessments were completed in different locations using different methods, therefore resulting in a score of 1. The coral cover and fish species targeted for conservation in Lawi Marine Reserve continue to decrease with no signs of improvement and thus received a score of 0.

The second criterion for success is “income or livelihood of community unharmed or improved”. The community of Apo Island has seen overall improvements in household incomes with the establishment of the CBMPA and the creation of alternative livelihood programs. In contrast, Balcon



Marine Protected Area and Lawi Marine Reserve have yet to observe improvements or neutral impacts to the communities' incomes and livelihoods following the establishment of the CBMPAs. Alternative livelihood programs have yet to be implemented at both sites and local fishermen have voiced their concern in regards to the potential negative impacts the CBMPAs are having on their livelihoods.

On “compliance by local community and stakeholder groups”, the community of Apo Island has compliance with the rules and regulations of the Apo Marine Reserve. Instances of illegal fishing within the Apo Island Marine Reserve are extremely rare. However, Balcon Marine Protected Area and Lawi Marine Reserve continue to have instances of local illegal fishing within the core zones of the CBMPAs, thus scoring 1 on community compliance. Although many community members and local Barangay officials of the communities of Balcon and Lawi express their support for the CBMPA, there are many locals still unaware or noncompliant with the established prohibitions of the CBMPA.

All three cases received a 1 for “perception of positive outcomes from the local community and stakeholder groups”. Interestingly, Apo Island Marine Reserve scored a 1 for community perception because interviews with local community members reveal distrust and negative perceptions of the current management. Many community members concerned about the shift in management from the MMC to the PAMB due to the PAMB lacking equitable local representation. The communities of Balcon and Marine Protected Area and Lawi Marine Reserve mostly displayed positive perceptions in regards to the CBMPAs. However, the lack of a strong localized managing body and the continued instances of noncompliance by some created negative perceptions in regards to the benefits that could potentially be derived from the CBMPA.

Overall, Apo Island Marine Reserve got 90%, in Livelihood Development (the explanatory variable) and also had a high score 88% in success, while Balcon and Lawi had just 40% each for the totals on the explanatory variables and 38% and 25% respectively on the dependent variable, success. This provides an answer to the research question of whether success of CBMPAs in the Philippines depends to a large extent on whether those whose livelihoods are disrupted have new ways to provide for their families. This indicates that in this analysis, success does appear to be correlated with alternative livelihood programs. Since this is an analysis of only three cases, it cannot be considered representative of all CBMPAs in the Philippines, but it indicates this relationship deserves further investigation.

## **Chapter 5. Conclusion**

The following chapter presents the purpose of this case study, key findings, significance of the research, limitations of this case study and recommendations for future research.

### **5.1 Purpose of Research**

Community based marine protected areas (CBMPAs) have two primary goals: to protect coral reefs and to improve local livelihoods. They have performed fairly well in meeting the first goal, but most have not been as successful in meeting the second. The purpose of this study was to provide a preliminary assessment of whether CBMPAs with alternative livelihood programs have greater overall success than those that do not. It examined three CBMPAs, one that was widely considered to be successful and two that had yet to meet their goals.

A second purpose of this study was to provide a Guide for Practitioners on how to incorporate alternative livelihoods into MPA management plans and ordinances in the Philippines. Ordinances establish CBMPAs and give general guidance while management plans are more specific about day to day management. Managers of CBMPAs in the Philippines take management plans very seriously and use them for a variety of practicalities. Thus, if alternative livelihoods are included in ordinances and management plans, they are more likely to become reality.

### **5.2 Key findings**

My research question was: Does the success of CBMPAs in the Philippines depend on whether fisherfolk and others, whose livelihoods are disrupted when a CBMPA is established, have new and sustainable ways to provide for their families?

I found that the case that was most successful was Apo Island Marine Reserve due to incorporating human dimensions into their management planning that helped them create sustainable livelihood programs that increased the community's compliance with the rules and regulations of the CBMPA. As a result of this high level of compliance, the Apo Island Marine Reserve observed improvements in species targeted and the ecological condition. In contrast, Balcon Marine Protected Area and Lawi Marine Reserve did not have sustainable livelihood programs in place and their success was far below that of Apo Island. Thus, the overall success of these CBMPAs appears to be strongly correlated with alternative livelihood programs. However, this is an analysis of only three cases. Further study is needed to determine if this correlation between alternative livelihoods and success is true for the majority of CBMPAs in the Philippines.

### **5.3 Significance of the Research**

Studies of the relationship between alternative livelihoods and the success of CBMPAs are relatively new. In fact, I did not find any other studies that focused specifically on a correlation between the two. Thus, that is a new approach that this study may contribute. In addition, most management guides and training manuals for the establishment of CBMPAs do not include detailed steps and strategies for implementing alternative and sustainable livelihood programs for displaced fishermen. This study breaks new ground in that area also as it includes a detailed guide for including sustainable livelihood programs in CBMPA planning.

Applications in biodiversity and conservation have begun to integrate the social sciences, including sociology, anthropology, and psychology. Natural scientists have begun to recognize that social, political, economic, and institutional factors are common drivers of the decline in biodiversity (Moon and Blackman 2014). This research project provides new insights through the utilization of anthropological and biological field methods to better understand the effects of incorporating human dimensions into management planning. A significant contribution of this project is a better understanding of how management processes and sustainable livelihoods affect the success of community based marine protected areas.

### **5.4 Limitations to the Study**

This exploratory study is limited to only three case study sites, so I am not suggesting that the results are representative of all cases of CBMPAs in the Philippines. This study is also not

representative of all the fisherfolk within the communities of Barangay Lawi, Barangay Balcon Melliza and Barangay Balcon Maravilla. I did not conduct door-to-door surveys of the perspectives of all local fisherfolk because such a survey would have been impractical as well as culturally inappropriate. I had to rely on secondary sources to gather information for Apo Island Marine Reserve. The study was also limited because I evaluated the plans and ordinances themselves and not their implementation. I am making the assumption that if sustainable livelihoods are included in the plans and ordinances, they will also be included in the implementation. More research is needed to determine if this assumption holds true.

## **5.5 Recommendations**

This study indicates that the success of a CBMPA may be dependent on the inclusion of alternative livelihood programs. Livelihood programs need to be based on unique human dimensions and resources of each community and these should be included in management planning for CBMPAs. Recommendations for future research include the need to increase the number of case studies to confirm correlations between human dimensions, management output, and the ability of CBMPAs to achieve goals and objectives. This project has the potential to be developed into theory as more case studies investigate planning processes, sustainable livelihoods and their impacts on CBMPAs.

Future studies should assess whether this analysis and comprehensive guide is widely applicable in the Philippines as well as other countries in the context of small-scale, community-managed marine protected areas that lack large sources of external funding. Future research should explore what drives community behaviors, needs and values that influence the way they may respond to management policies and their natural environment. Understanding how forced changes, such as prohibitions on fishing, impact communities' overall well-being. Perceptions of management are critical for evaluating the success and failures of CRM related activities.

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# Appendix A: Incorporating Sustainable Livelihoods into Community-Based Marine Protected Areas

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A GUIDE FOR PRACTITIONERS



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School of  
Natural Resources  
and Extension



## **LIVELIHOOD PLANNING PROCESS CHECKLIST:**

**PART 1:** Generating and analyzing data and information

**PHASE I:** Community Surveys and Asset-Base Mapping

- ✓ Step 1: Identify and train your facilitators and data collectors.
- ✓ Step 2: Prepare the community dialogues.
- ✓ Step 3: Conduct the community dialogues.
- ✓ Step 4: Analyze the community dialogues.
- ✓ Step 5: Prepare a community asset-based map.

**PHASE II:** Community Participatory Coastal Resource Assessment Workshop

- ✓ Step 1: Prepare communications/invitations for the Community Participatory Coastal Resource Assessment Workshop.
- ✓ Step 2: Prepare materials, facilitators and venue for the Community Participatory Coastal Resource Assessment Workshop.
- ✓ Step 3: Carry out the Community Participatory Coastal Resource Assessment Workshop.
- ✓ Step 4: Analyze and organize output generated by the Community Participatory Coastal Resource Assessment.

**PART 2:** Preparing effective management plans and ordinances

**PHASE III:** Preparing effective management plans and ordinances

- ✓ Step 1: Establish a CBMPA management board, committee or council.
- ✓ Step 2: Carry out CBMPA management board planning meetings.
- ✓ Step 3: Draft the CBMPA management plan and ordinance.
- ✓ Step 4: Establish sub-committees and task forces for each of the management components for the CBMPA.
- ✓ Step 5: Present the CBMPA management plan and ordinance to the community for feedback and review.
- ✓ Step 6: Implement the CBMPA management plan and ordinance.

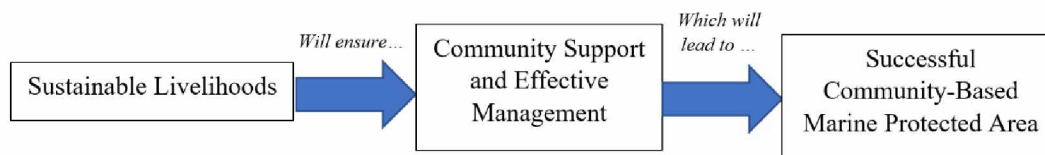
## **Is your community or local government agency planning to establish a small-scale, community-based marine protected area?**

Use this guide to ensure community support and management of successful community-based marine protected areas by developing sustainable livelihood programs for the communities.

### **Why should you use this guide?**

Community-based marine protected areas impact and are influenced by the local community(s) of which they are based from. As a result, there is a need to consider and plan for the implementation or maintenance of sustainable livelihoods of the community(s) establishing the marine protected area. By maintaining and providing sustainable livelihoods measures, the local community(s) will further support and manage the community-based marine protected area in a sustainable and effective way to achieve goals and objectives.

### **The Basic Idea:**



### **How to use this guide:**

The goal of this manual is to provide guidance on how to collect and analyze information surrounding human dimensions and capital assets to create and maintain sustainable livelihoods for communities establishing community-based marine protected areas. Users of this guide will have the means to produce effective management plans and ordinances that include a framework for sustainable livelihoods incorporated in the planning of community-based marine protected areas.

This guide should be used in concert with other marine protected area management planning guides. Further, this guide does not provide in-depth information on how to collect and analyze ecological and biological data that are also essential for planning and management of marine protected areas.

The following are essential marine protected area management components that are not covered in detail in this guide:

- Biological/ecological assessments
- Fish catch monitoring and analysis
- Enforcement strategies
- Zoning and delineation strategies
- Community organizing and establishment of fisherfolk associations
- Education, communication and information programs/strategies

## **Who should use this Guide?**

Essentially any stakeholder involved in the establishment of a community-based marine protected area should use this guide.

- Fisheries Technicians
- Volunteers
- Elected Officials
- Government Agencies
- Non-government Agencies
- Barangay Officials
- Fishermen
- Fisherfolk Associations

## **Defining Our Terms:**

### *Community-Based Marine Protected Areas (CBMPA):*

A community-based marine protected area (CBMPA) is defined as an area of sub-tidal marine waters where the majority of the underwater area is coral reef habitat. It may or may not include portions of inter-tidal waters and other habitats such as seagrass beds or mangroves. CBMPAs that has been legally designated by local government ordinance (municipal) as a protected area that permanently prohibits all human extractive resource activities (particularly fishing). CBMPAs are primarily managed by the local community through municipal or barangay institutions (e.g., FARMCs), or community-based peoples organizations (e.g., sanctuary committee, fishers' associations).

### *Sustainable Livelihoods:*

A livelihood comprises of the capabilities, assets, and activities required for a means of living. It is deemed sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities, assets, and activities currently and in the future, while not undermining the natural resource base.

## **Why Sustainable Livelihoods?**

The goal of alternative sustainable livelihoods is to find solutions that fit people's current livelihood strategies and that will have a positive impact on the ways by which people make a living and the use of their natural resources.

The key is to promote livelihood diversification through the transformation of economies.

<b>Environmental and Natural Resource (ENR) Based Livelihood Activities</b>	<b>Non-ENR Based Livelihood Activities</b>
Agriculture (crop and livestock)	Vulcanizing Business
Aquaculture (all types)	Black smiths Builders
Bed building	Dress making
Bee keeping	Employment (local government)
Boat building/repair Carpentry	Employment (private sector)
Charcoal making	Guest houses
Cooking and selling food	Hair dressing
Cow dung collection	Ice sellers
Cut flowers	Laboring
Crab fattening	Mechanics
Education	Net making/repair
Employment (food processing factories)	Petty trading
Fish processing	Seasonal migration to towns
Fish trading	Shop keepers
Fishing (all types & all gears)	Transport (tricycles, jeepneys, buses, boats, ferries)
Fuelwood collection	Textile factories
Handy craft (mat making, bags, baskets etc.)	
Harvesting and selling coconut by-products	
Hunting	
Live coral extraction	
Lime making	
Mangrove harvesting	
Mariculture (all types)	
Palm wine making	
Poultry farming	
Post larvae collection	
Shrimp nursery	

Salt Panning	
Seaweed collection	
Shell collection	
Stone quarrying	
Thatch makers & collectors	
Tourism	
Traditional medicine	
Waste recycling	
Weaving using natural fibers	

### **Objectives of Sustainable Livelihoods:**

- To provide opportunities for more stable incomes and wider range of benefits among members of the recipient organization and the community;
- To intensify popular participation in natural resource management;
- To develop a broad support base for upland and coastal zoning systems and the management of protected areas.

### **Consider the following when preparing and implementing Sustainable Livelihoods:**

1. Economic viability and potential for business expansion
2. Credit assessment
3. Impact and correlation with wise coastal management practices
4. Counterpart funding from other institutions
5. The People's Organization as a micro-enterprise/livelihood development cooperator and recipient
6. Business Plan

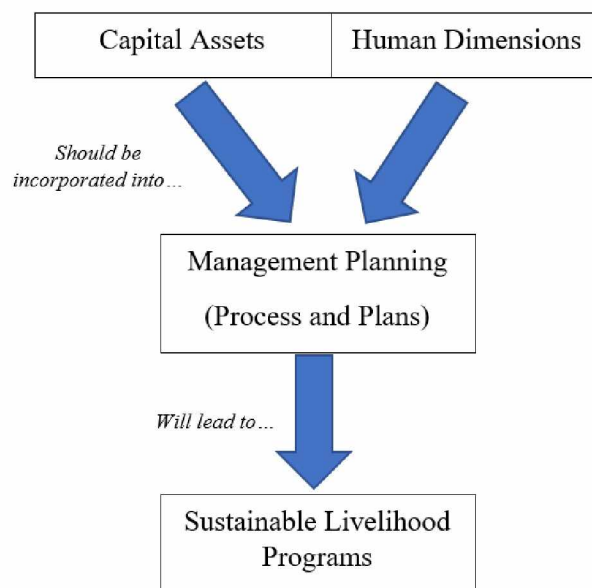
### **How to make markets work for rural coastal-communities in the Philippines:**

1. Implement grants and investments
2. Engage the private sector commercially
3. Think beyond credit and use the three pillars of enterprise
  - a. Access to capital
  - b. Business development services
  - c. Provide enabling environment
4. Aggregate Supply and Demand
5. Formalize Ownership
6. Use a demand-driven approach
7. Adhere to business basics

## How do we get to Sustainable Livelihoods?

Sustainable livelihoods are generated by understanding a community's assets and human dimensions. The understanding and analysis of these components through the planning process will result in the production of effective and relevant programs and projects designed to improve the means by which members of the community make a living in a sustainable manner. Further, providing alternative and sustainable opportunities for community members to make a living enhances their desire to support and comply with the regulations and planning framework of the community-based marine protected area.

### Basic Idea:



## HUMAN DIMENSIONS

### What are Human-Dimensions?

Human dimensions are defined as the social, economic, cultural, and political aspects that need to be taken into consideration in community-based marine protected area planning and management process.



<b>Social Dimensions:</b>	<b>Cultural Dimensions:</b>	<b>Political Dimensions:</b>	<b>Economic Dimensions:</b>
Identity	Values	Governance	Wealth
Ethnicity	Religion	Hegemony	Wage Production
Race	Norms	Ideology	Subsistence
Ethnocentrism	Traditions	Institutions	Social Class
Gender	Practices	Colonialism	Mixed Economies
Age	Beliefs	Power	Globalization
Demographic Variables	Customs	Social Class	Capitalism
Community	Attitudes	Equity	Employment
Well-being	Personalities	Sovereignty	Ecosystem goods and services
History	Knowledge	Justice Fairness	Livelihoods

### **Why do we need to incorporate human dimensions?**

Human dimensions need to be considered, understood and addressed in the process of community-based marine protected area planning and management in order to minimize negative impacts and enhance benefits from conservation areas. Community-based marine protected areas are human-ecological systems and thus require a holistic, integrated and multi-faceted approach that balances ecological goals with human considerations.

Human dimensions provide valuable information useful in planning sustainable livelihood programs and projects to offset possible losses from the establishment of community-based marine protected areas.

## ASSETS

### What are assets?

Assets are objects of value that an entity owns, benefits from or has use in generating income. An asset can be tangible or intangible and is affected by external drivers, such as institutions, policies, legislation and markets.

Human Capital	Social Capital	Natural Capital	Physical Capital	Financial Capital
Health	Networks and connections	Land and produce	Infrastructure	Savings
Nutrition	Relations of trust, mutual understanding and support	Water and aquatic resources	Transport, roads and vehicles	Credit and debt (formal and informal)
Education	Formal and informal groups	Trees and forest products	Water supply and sanitation	Remittances
Knowledge and skills	Shared values and behaviors	Wildlife	Tools and equipment for production	Pensions
Capacity to work	Common Rules and sanctions	Wild foods and fibers	Seed, fertilizer, and pesticides	Wages
Capacity to adapt	Mechanisms for participation in decision-making	Biodiversity	Traditional technology	Subsistence
Community structure	Leadership	Environmental Services	Secure shelter and buildings	Markets

### Why do we need to incorporate assets?

Assets are essential in creating alternative and sustainable livelihood programs and projects for a community establishing a marine protected area. They are the existing tools, resources, wealth, and opportunities that will serve as the foundation or be used in creating sustainable livelihoods.

### How this guide ties everything together:

This guide provides steps and goals to effectively prepare a community-based marine protected area management plan and ordinance that incorporates sustainable livelihoods to ensure the CBMPA is successful in achieving set goals and objectives.

### The guide consists of two-parts:

- (1) How to generate data and information to be included and analyzed for the management plan and ordinance;
- (2) How to prepare effective community-based marine protected area management plans and ordinances.

### Three-phase process for sustainable livelihood management planning:

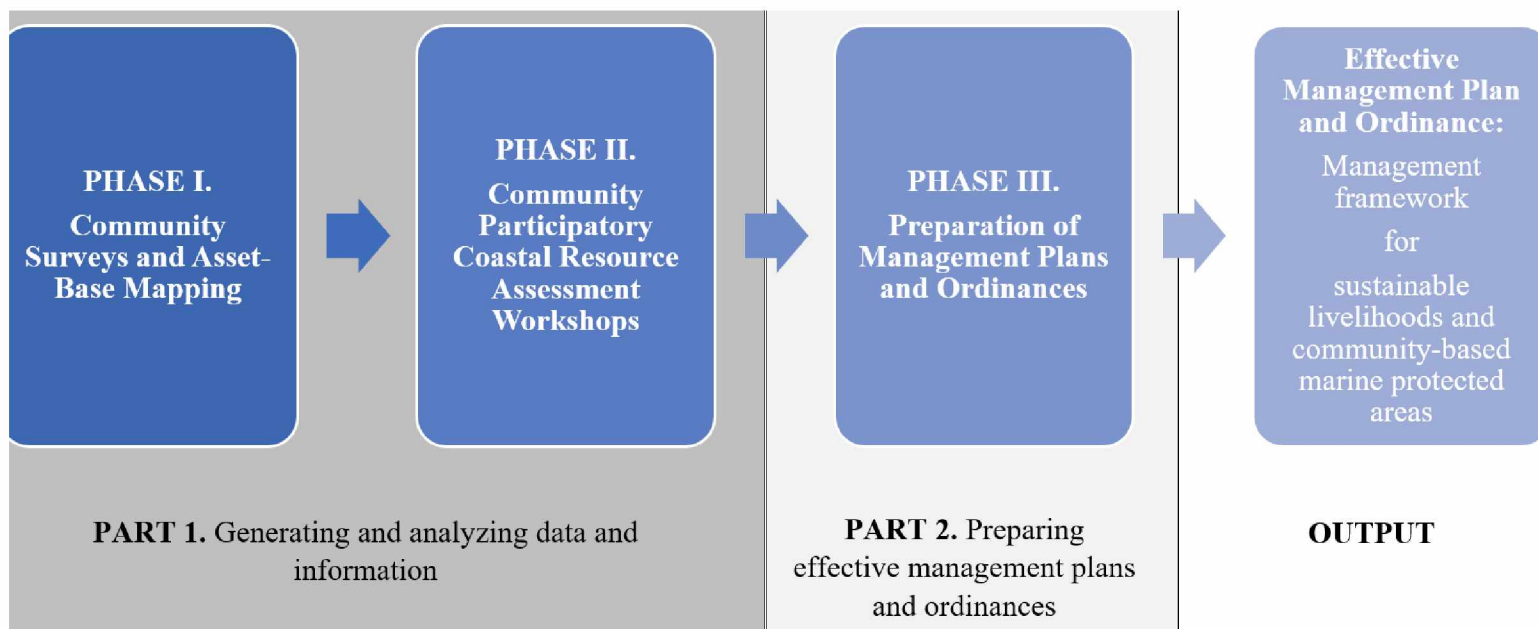
Generating and analyzing data and information through the following processes:

- I. Community Surveys and Asset-Base Mapping
- II. Community Participatory Coastal Resource Assessment Workshops

Preparing effective management plans and ordinances through the following processes:

- III. Preparation of Management Plans and Ordinances

### Basic Idea:

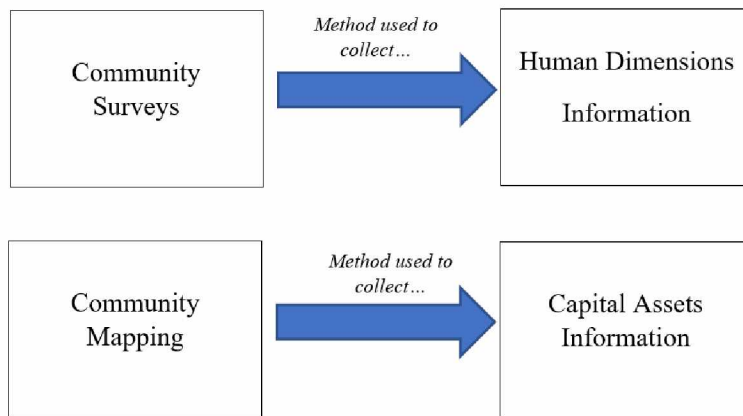


Things to consider during data collection and analysis:

- Cultural sensitivity to traditions, practices and values of the community
- Use of the local-dialect in all procedures and processes
- Equitable inclusion of all point of views of participants included
- Continuous process of which adjust to changing conditions and goal

## **PART 1:**

### **PHASE I. COMMUNITY SURVEYS AND ASSET-BASE MAPPING**



#### **STEP 1. Identify and train your facilitators and data collectors.**

**Goal:** To generate trained, knowledgeable and culturally aware local facilitators and data collectors to assist in the gathering of important information and to facilitate workshops and meetings for planning sustainable livelihoods and community-based marine protected areas.

#### **What is a facilitator/data collector?**

A person or thing that makes an action or process easy or easier. They are responsible in carrying out processes to create and implement community-based marine protected area management plans. Note that a facilitator is not a stakeholder and must remain neutral on issues.

#### **Examples of Potential Facilitator/Data Collectors:**

- Fisheries Technicians
- Municipal Agriculturist
- Volunteers
- Barangay Officials
- President of Local Fishery Association
- Government Agency Personnel

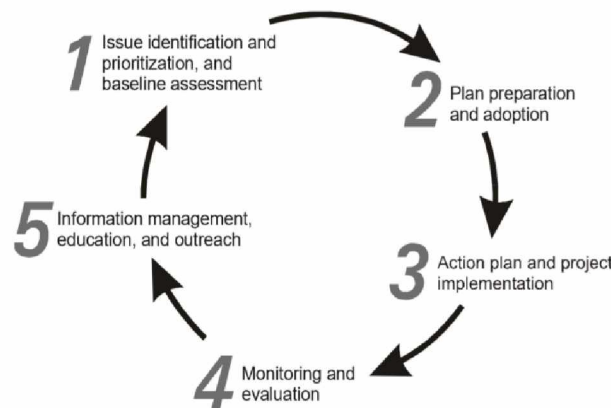
#### **What are the roles of a facilitator/data collector?**

- Set the agenda for a group meeting, workshop, discussion, etc.
- Monitor the group's process
- Guide the group to reach consensus
- Lead the group to carry out planning activities
- Help the group make decisions

- Facilitate the group to set action plans
- Collect data during the following:
  - o Community Surveys and Mapping
  - o Participatory Resource Assessment Workshops
  - o Management Board/Committee Meetings and Workshops
- Help analyze all data collected
- Help prepare management plans and ordinances as needed
- Facilitate the CBMPA management board/committee meetings

### What will they need to know?

1. Coastal Ecosystems and Reef Fisheries
2. Local Governance Structures and Processes
3. The Planning Process
4. Community-based Marine Protected Areas: A strategy for Managing Habitats
5. Conflict Resolution Strategies
6. Alternative and Sustainable Livelihood Planning



Ehler and Douvère 2009

**Key Idea:** Train your facilitators to understand the planning and implementation process of CBMPAs and Livelihood Programs in the context of the local governance structures and processes.

### How to train you facilitators/data collectors?

Trainings for facilitators and data collectors should foster learning, inclusivity, cultural appropriateness and the sharing of diverse perspectives.



The following are strategies for training facilitators/data collectors:

Strategies:	Potential methods for each strategy:
<ul style="list-style-type: none"><li>- Group Workshops</li><li>- One-on-one Tutoring</li><li>- Focus Group Discussions</li></ul>	<ul style="list-style-type: none"><li>- PowerPoint presentation</li><li>- Activities and example exercises<ul style="list-style-type: none"><li>o Mock data collection exercise</li></ul></li><li>- Prepare and distribute worksheets and pamphlets</li><li>- Prepare modules</li><li>- Brainstorming discussions</li><li>- Direct tutoring of concepts and skills</li><li>- Courtesy calls to local government officials</li><li>- Facilitate a “walk-through” the community</li></ul>

### **Qualities and skills of a good facilitator**

- Open-mindedness
- Creativity
- Respect for stakeholders, and ability to command respect from them
- Sensitivity to local culture and gender
- Understanding of local context and issues of concern
- Sense of humor
- Modesty
- Focus on guiding rather than leading the process
- Familiarity with community organizing and participation process
- Strong social (to establish rapport) and communication skills
- Conflict management skills

### **STEP 2. Prepare the community dialogues.**

**Goal:** To create and prepare community surveys or interview guides that will go about addressing critical human dimensional information from respondents that will be used in sustainable livelihoods planning in a culturally sensitive and respectful manner.

### **Why involve the community?**

Marine resources are not easy to “fence-off” and moreover are considered a common property and available to all. Protection and management of these resources thus requires the support and cooperation of the stakeholder community. The community has the ability to provide critical information surrounding human dimensions and assets that can be used in sustainable livelihood planning and implementation. Involving the community can reduce the conflict which often

arises in MPA establishment where the best sites for conservation are also those most economically valuable.

Who comprises the local community?
<ul style="list-style-type: none"> <li>- Families Elders, young people, adults</li> <li>- Subsistence-level fishers</li> <li>- Commercial fishers</li> <li>- Farmers</li> <li>- Transporters</li> <li>- Tourism officers</li> <li>- Property/Industry managers</li> <li>- Local Government Units/Local Government Agencies</li> </ul>

### What is a community dialogue?

Community surveys, usually in the form of a questionnaire or interview, are tools to gather information surrounding community perspectives. For planning of sustainable livelihoods, they are methods used to gather information surrounding the human dimensions and assets that comprise the community.

### Defining the survey population:

If it is not possible to speak with everyone in the community, a diversity of selected community members who are able to provide information on particular subjects based on their knowledge, skills or experience should be sought to provide key information. Key informants should include representatives from each sector that comprises the community. It must be noted, however, that identification of these respondents may sometimes be dictated by political affiliations, so where possible, efforts must be made to seek out other key informants to triangulate information generated, particularly those on sensitive or controversial issues.

### What information should be collected in the community dialogues?

Human Dimension:	Information to be collected:
Social Dimensions	Identity Ethnicity Race Ethnocentrism Gender Age

	Demographic Variables Community Well-being History Education
Cultural Dimensions	Values Religion Norms Traditional Practices Beliefs Customs Attitudes Personalities Knowledge
Political Dimensions	Governance Ideology Institutions Colonialism Power Social Class Equity Sovereignty Justice Fairness
Economic Dimensions	Livelihoods Wealth Wage Production Subsistence Social Class



	Mixed Economies Globalization Capitalism Employment Ecosystem goods and services
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### **Principles for preparing community dialogue:**

- Inform concerned local leaders about the need to conduct interviews.
- Set a date, time and place most convenient to the respondents.
- Obtain a broad overview of the area and the community so you are able to select a representative sample of interviewees.
- Prepare for the interview by reviewing the guide/questionnaire and be informed about the topic.
- Identify persons to be interviewed beforehand and schedule appointments. State the purpose of the interview.
- Be sensitive to cultural practices and make the interview as discreet as possible.
- Arrange for a translator if you do not speak the local language/dialect of your respondents.
- Be aware of the daily schedule of community members and schedule interviews so that they do not interfere with respondents' important activities.
- Ensure all materials for the interview are in order.

**[Example] Fisher Folk Community Survey Questions:**

**General Information:**

- Name and position of interviewer and respondent?
- How many years in community?
- What are your positions/memberships held in the community?
- Where do you live?
- Where were you born?

**Social Dimensions:**

- What is your highest level of educational attainment?
- Number of children?
- Number of individuals in household?
- Age?
- Gender?
- What is the historical context of your family/community?
- Do you or any of your family members suffer from any chronic diseases, illnesses or other health problems?
- Do you have access to health care?
- Do you practice family planning?
- What are current People's Organizations within your community (i.e. women's organizations, senior citizen groups, youth groups)?

**Cultural Dimensions:**

- What is you and your family's religion?
- What do you value the most?
- What traditional ecological-knowledge do you have pertaining to coastal resources?
- Are you aware of current issues and problems affecting your community's coastal resources?
- What is the primary purpose of a CBMPA?
- Are you in favor if the presence of a CBMPA?
- Will you and your community benefit from the establishment of the CBMPA?
- Describe traditional practices you or your family maintain (i.e. fiestas, crafts making, rituals, prayers).
- Describe your typical day or schedule.

**Political Dimensions:**

- Do you receive financial or capital support from any local government institution?
- Describe your local government unit/structure.
- Are you aware of who your current local government officials are?
- Did you vote in the last local elections?
- Are you affiliated or a supporter of any of the local government officials?
- Have you ever received financial or capital support from any local government official?
- Is there a minority group or native/indigenous peoples present in your community?

**Economic Dimensions:**

- What is your weekly income?
- What is your households overall weekly income?
- What is your main source of income?
- What are other sources of income for you and your family?
- What capital skills (besides fishing) do you possess?
- Average amount of fish caught per week?
- Average amount of fish sold per week?
- Average amount of fish consumed for personal use?
- What natural resources do you harvest (i.e. fish species, tree species, invertebrate species, sediments)?
- Do you have relatives abroad?

### **[Example] Supplemental Survey Questions for Elected Officials:**

#### **Political Dimensions:**

- Do you provide financial or capital support for any current programs or projects within the community?
- Describe your local government unit/structure.
- What are your political priorities?
- Will you run in the next election?
- Are you affiliated with any members of the general community or government agency?
- Do you support any minority group or native/indigenous peoples?
- Do you support the establishment of a community-based marine protected area?
- What role does your position play in coastal resource management?

#### **Economic Dimensions:**

- How are budgets currently allocated for coastal resource management programs?
- Is there an existing budget for alternative/sustainable livelihood programs and projects?
- Is the local government unit affiliated or in partnership with NGOs or outside funding agencies?
- What other government agencies are involved in coastal resource management for this community?

### **STEP 3: Conduct the community dialogues.**

**Goal:** To carry out community surveys or interviews in a manner that will effectively gather information surrounding human dimensions of the community to be considered in the planning of sustainable livelihoods and community-based marine protected areas, while maintaining cultural sensitivity and respect for the respondents.

#### **Principles for conducting community dialogues:**

- Conduct interviews in the language of the respondent(s)
- Begin with the traditional greeting and properly introduce yourself/members of your team and the purpose of the interview.
- Advise respondents as to the length of time expected to complete the interview.
- Express to the respondents that you are there to learn from their insights and experiences.
- Explain to the respondents of the informed consent process.
- Conduct of interview informally and mix questions with discussions.
- Be open-minded and objective.
- Be respectful and sensitive.
- Be sensitive to nonverbal language.
- Establish rapport and build trust with your respondents by showing interest in what is important for them,
- Ask easy questions before the more difficult ones.
- Use indirect questions for sensitive aspects.
- Ask open-ended questions so that they require explanations, rather than a “yes” or “no”.
- Make questions short and easy to understand and ask these clearly and one at a time.
- Show interest and encouragement when asking for additional information.
- Record only what is being said.
- Finish the interview politely and thank the respondents sincerely.

#### **STEP 4. Analyze the community dialogues.**

**Goal:** Create a community profile that includes information surrounding the human dimensions of the community to be considered for sustainable livelihood planning.

#### **How do we organize data collected to be used for sustainable livelihood planning?**

After conducting the community surveys, the data should be organized and recorded into databases or spreadsheets. Once compiled, all responses should be summarized and key points highlighted. Critical information surrounding human dimensions, assets and implications to coastal resource management should be analyzed for initiating the planning of possible sustainable livelihood programs and projects.

#### **Example strategy for the organization and analysis of responses:**

Create a table with the following headings to organize and analyze data surrounding human dimensions.

<b>Human Dimension:</b>	<b>Implications to the Management of the CBMPA:</b>	<b>Possible assets derived from human dimensions that can be used/considered in livelihood planning:</b>
Ex. High number/percentage of primary and secondary students in the community. Many of the household incomes of these students do are unable to support the tuition costs for post-secondary education.	Ex. The high number/percentage of students present in the community provides opportunities for student engagement and education with coastal resource management programs and projects such as CBMPAs. Possible program opportunities include: environmental camps, coastal clean-ups, mangrove reforestation, etc.	Ex. The high number/percentage of students in the community provides livelihood support program opportunities to aid in providing funds for post-secondary education tuition. For example, tourism and recreational fees for activities in the CBMPA can be collected and support scholarship programs for students.

Example strategy for summarizing data generated by the community surveys:

1. Name of the community
2. Land area in hectares
3. Length of coastline if kilometers
4. Name of the respondents and their position/organization/sector

5. Household data
  - a. Number of households in community
  - b. Average number of children in families
  - c. Average family size
  - d. Average educational attainment of family members
    - i. Fathers
    - ii. Mothers
    - iii. Children
  - e. How many families have toilets
  - f. How many families do not have toilets
  - g. How many families are engaged in fishing
  - h. Average household income
6. Population and reproductive health
  - a. What is the total population of the community
  - b. Percentage of community age
  - c. What percentage of the population practices family planning
7. Number of fishers, fishing crafts and gears
8. Coastal use patterns and activities
9. Types of housing materials
10. Sources of water
11. Migration patterns
  - a. Was there an increase or decrease of population living in the area for the past year? Why?
12. Occupational structure
  - a. Major occupations in the community
  - b. Estimated percentage of the population in this occupation
  - c. Estimated monthly income from such occupations
  - d. Who usually does the occupation
13. Religion/faith percentages
  - a. Cultural practices
14. Community infrastructures
  - a. Environmentally sound enterprises or livelihood projects existing in community
    - i. Description of project
    - ii. Beneficiaries/participants
    - iii. Assisting organizations
  - b. People's organizations (POs) or management organizations (FARMCs) existing in community
  - c. Influential stakeholders identified in the community
15. Perceptions of resource conditions
16. Coastal activities
  - a. All major aquaculture and maricultural activities
  - b. Coastal Law enforcement
    - i. Perceived level of enforcement



- ii. Compliance
  - iii. Existing law enforcement groups/agencies in your community
17. Presence of Indigenous Peoples Tribes

### **Principles for after the surveys are conducted:**

- “Clean-up” your notes on the interview the soonest possible time as you may quickly forget information.
- Test your understanding of the data by validating these subsequent interviews with other respondents.
- Note down your observations and add any general information you may have gathered in the course of the interviews.
- Record only what is being said and what you see.
- Note down “quotable quotes” from respondents that can be used in reports.
- If needed, use an interpreter’s services to ensure you have correctly noted the responses.
- Ensure the completed notes/responses/questionnaire guides are properly identified and kept confidential.

### **How do we fill in gaps of data?**

Socio-demographic data that is not generated from the community surveys may be possibly available through inquiry from the local municipal government. Most documents containing socio-demographic and geographic profiles of communities are available and made transparent for local planning use upon request.

### **STEP 5. Prepare a community asset-based map.**

**Goal:** To create a community map that will be presented and further utilized in community workshops to identify assets within the community that can be used in the management and planning of sustainable livelihood programs.

### **What is community mapping?**

Community maps are visual techniques used to present information coastal and marine resources in the area that can be easily understood by community members. Maps also reveal critical information surrounding the community’s assets and socio-economic conditions.

These maps generally serve to reflect the locations/boundaries of villages, coastal and fisheries resources, forests, agricultural and urbanized lands, water resources as well as their present uses and key activities including corresponding issues and problems.

Information that can be mapped:

- Boundaries
- Roads
- Settlements
- Other infrastructures

- Natural resources
- Land use
- Zonation
- Other special interests

### What needs to mapped?

Things to Map:	Examples (not limited to the following):
General Information/Features	Land marks in the community (i.e. plaza, rivers) Road networks Houses Boundaries
Critical Habitats	Nesting grounds Mangroves Sea grass beds Beach areas Rock shorelines Mudflats Inshore flats Coral reefs Estuaries Wetlands
Natural Capitals	Nurseries Plantations Agricultural fields – rice terraces Sediment/mineral deposits Wildlife areas Fishing grounds Waterfalls

	<p>Scenic areas</p> <p>White sand beaches</p>
Economic Capitals	<p>Markets</p> <p>Banks</p> <p>Fish landing sites</p> <p>Resorts</p> <p>Private large-scale businesses</p> <p>Small-local businesses</p>
Human Capitals	<p>Schools</p> <p>Hospitals</p> <p>Government buildings</p> <p>Community centers</p>
Physical Capitals	<p>Infrastructure</p> <p>Transport, roads and vehicles</p> <p>Water supply and sanitation</p> <p>Tools and equipment for production</p> <p>Seed, fertilizer, and pesticides</p> <p>Traditional technology</p> <p>Secure shelter and buildings</p>
Uses	<p>Fishing gear areas</p> <p>Gleaning sites</p> <p>Marine protected areas</p> <p>Sacred sites – cemeteries</p> <p>Rehabilitation areas</p> <p>Wharfs</p>
Livelihood Opportunities	<p>Dive/snorkel sites</p> <p>Hiking trails</p> <p>Potential markets</p>



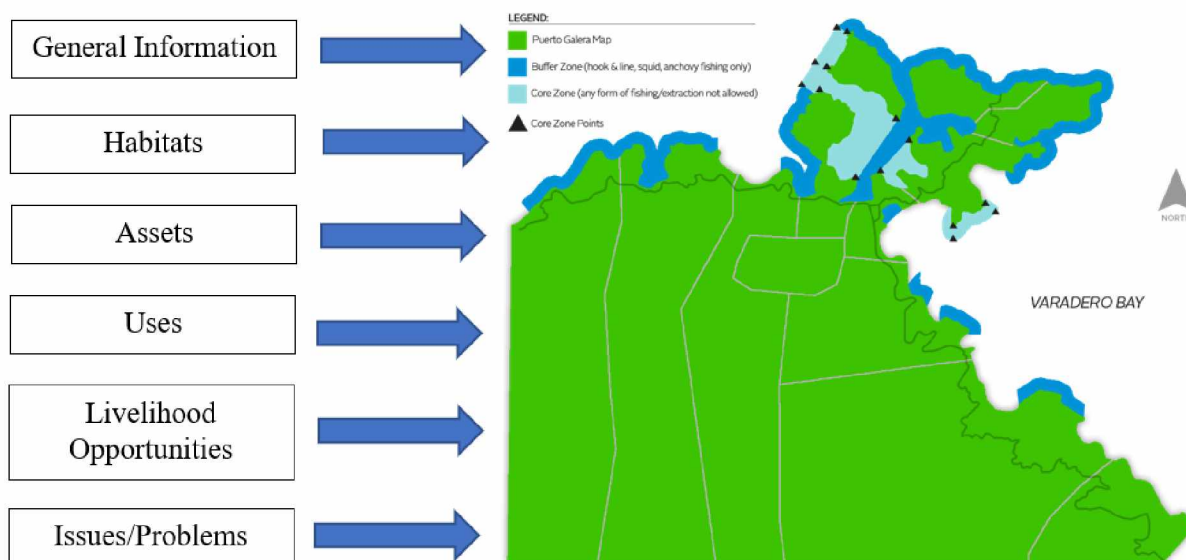
	Agriculture sites Aquaculture sites Craft making locations
Issues/Problems	Blast fishing Lack of land tenure Beach erosion Mangrove cutting Commercial fishing intrusion Lack of alternative livelihood Organizational conflicts

### How to prepare for a community mapping?

Management planners, facilitators and data collectors should go about preparing a community map for use in the Participatory Coastal Resource Assessment Workshop.

Prepare a base map that will be an outline of the area that can be produced in the following ways:

1. Identify key community members or local officials to help fashion the map
2. Create a coding system
3. Make use of existing maps of the community
4. Conduct a foot-survey or aerial survey (if possible)



## **PHASE II. COMMUNITY PARTICIPATORY COASTAL RESOURCE ASSESSMENT WORKSHOPS**

### **What is a Community Participatory Coastal Resource Assessment (PCRA) Workshop?**

Community Participatory Coastal Resource Assessment Workshops are processes and activities in a form of a public workshop to gather and analyze information involving the participation of local users in planning and management of community-based marine protected areas and sustainable livelihoods.

### **Objectives of Community PCRA Workshops:**

- Provide an opportunity all stakeholder and user groups in the community to discuss and analyse their livelihoods, including problems, causes of problems, livelihood strategies and potentials that could help them solve problems.
- To undertake planning steps for livelihood projects and programs by identifying interest groups, priorities, goals, objectives, budgets, and timelines for implementing activities.
- To build people's capacity to participate more actively in livelihood and coastal resource management planning.

The idea is to supplement and add onto the existing data collected surrounding human dimensions and assets of the community to develop an effective livelihood and CBMPA management plan.

### **Content of Community PCRA Workshop:**

Depending on the needs and schedules of the participants, community PCRA workshops are held over a two-day period at a time most convenient to the majority of participants to ensure full-participation. This guide provides suggested activities to implement in Community PCRA Workshops to further the planning and development of sustainable livelihood programs to compliment the establishment of a community-based marine protected area.

### **The following are suggested activities to cover in the workshop:**

- Education/Background Information
- Community Mapping
- Calendar Diagram
- Trend Diagram
- Livelihood Transect Diagram
- SWOT Analysis
- Community Priority Brainstorming

### **STEP 1. Prepare communications/invitations for the Community Participatory Resource Assessment Workshop.**

**Goal:** To effectively communicate and invite all user and stakeholder groups in the community in an equitable manner to attend the community PCRA workshop.

### **Who should be invited to the community PCRA workshops?**

The idea is to ensure that all participants that attend the Community PCRA Workshop are equally distributed based off gener, age and social class.

Representatives from the following groups of users and stakeholders should be invited to attend:

- Fishermen
  - Representative of all age groups, areas within the community, and genders
- Fisherfolk Association President
- Municipal Fisheries and Acquatic Resources Management Council Member
- Fisheries and Acquatic Resources Management Council Chairman
- Agricultural Workers
- Senior Citizens
- Womens Association
- Youth
- Community Officials
  - Barangay Captain
  - Barangay Chairman on Agriculture
- Teachers
- Craftsmen
- Transportation Workers
- Small-business owners
- Private Business Owners
  - i.e. Resort owners, dive shop owners

### **How should participants be invited to the Community PCRA Workshops?**

The main objective is to ensure all user and stakeholder groups within a community are involved in the community PCRA worrkshop to ensure all perspectives and view-points are being taken into account for the planning and management of sustainable livelihoods and CBMPAs.

The idea is to communicate relevance and importance of all invitees to attend the community PCRA workshop for their valuable input that will be used to design the CBMPA and sustainable livelihood programs.

Strategies:	Notes:
Door-to-door/face-to-face invitations	<ul style="list-style-type: none"><li>- Ensure that door-to-door strategy is culturally appropriate and not invasive</li><li>- For face-to-face invites, prepare and distribute sheets of paper written in the local language with information regarding the PCRA</li><li>- For face-to-face invites, ensure that invitations do not interfere with important daily work activities</li></ul>

Informal/formal announcements at meetings	<ul style="list-style-type: none"> <li>- Prepare formal/informal requests to receive permission to announce the upcoming PCRA at the given meeting</li> <li>- Make use of organization or committee meeting times to announce the upcoming PCRA</li> <li>- For announcements, prepare and distribute sheets of paper written in the local language with information regarding the PCRA</li> </ul>
Posters and signs	<ul style="list-style-type: none"> <li>- Prepare incentivising posters and signs with information regarding the PCRA in the local language that is legible for all audiences</li> <li>- Distribute posters with information regarding the PCRA at all major traffic sites in the community (i.e. jeepney stops, elementary schools, municipal halls, and markets)</li> </ul>
Written formal communications	<ul style="list-style-type: none"> <li>- For public and elected officials, prepare formal letters of communication inviting them to participate in the PCRA workshop</li> <li>- Be sure to clearly communicate the purpose of the workshop and the importance of their attendance</li> </ul>
Phone call and text message invites	<ul style="list-style-type: none"> <li>- For participants that are not reachable through other means, prepare text messages and phone call scripts inviting potential participants to the PCRA</li> </ul>

**STEP 2. Prepare materials, facilitators and venue for the Community Participatory Coastal Resource Assessment Workshop.**

**Goal:** To prepare all needed materials, train and brief facilitators, and set-up the workshop's venue for the community PCRA workshop to ensure participants feel comfortable and able to effectively provide critical output for management planning.

### What materials should be prepared?

Suggested PCRA Activities:	Materials Needed:
Education/Background Information	<ul style="list-style-type: none"> <li>- Projector/Screen</li> <li>- Working laptop</li> <li>- Posters</li> <li>- Photos/videos</li> <li>- Visualizations to explain concepts</li> </ul>
Community Mapping	<ul style="list-style-type: none"> <li>- Baseline map</li> <li>- Colored paper</li> <li>- Colored pens/crayons/markers</li> <li>- Colored sticky notes</li> <li>- Tape</li> </ul>
Calendar Diagram	<ul style="list-style-type: none"> <li>- Prepared poster with gears types on y-axis and months on x-axis</li> <li>- Colored pens/crayons/markers</li> <li>- Colored sticky notes</li> <li>- Tape</li> </ul>
Trend Diagram	<ul style="list-style-type: none"> <li>- Prepared poster with catch (kg/fish/day) on y-axis and years starting from 1990's on x-axis</li> <li>- Colored pens/crayons/markers</li> <li>- Colored sticky notes</li> <li>- Tape</li> </ul>
Livelihood Transect Diagram	<ul style="list-style-type: none"> <li>- Prepare poster with table</li> <li>- Colored paper</li> <li>- Colored pens/crayons/markers</li> <li>- Colored sticky notes</li> <li>- Tape</li> </ul>
SWOT Analysis	<ul style="list-style-type: none"> <li>- Prepare poster with table</li> <li>- Colored paper</li> <li>- Colored pens/crayons/markers</li> <li>- Colored sticky notes</li> <li>- Tape</li> </ul>
Community Priority Brainstorming	<ul style="list-style-type: none"> <li>- Prepare poster/sheets of paper</li> <li>- Colored paper</li> <li>- Colored pens/crayons/markers</li> <li>- Colored sticky notes</li> <li>- Tape</li> </ul>

**Important consideration:** For all trainings, workshops and meetings, it is important to ensure that food, water, and proper sanitation is provided to all participants.

### **What do the facilitators need to know?**

To effectively prepare for the Community PCRA Workshops, the facilitators should carry out the following:

- Facilitators among themselves should establish values, principles and goals of the planning group/groups and clarify vision, objectives and planned output for the workshop process.
- Clarify procedures for feedback to different constituencies throughout the process and establish norms or “ground rules” for the process, such as how to reach consensus and ensure that all voices are heard and that the process meets the necessary requirements for consultation and participation.
- Plan a series of meetings in advance in order to ensure that basic logistics are coordinated, such as transport for local communities and the interpretation and translation of documents, realizing that the participation plan may need to be revised from time to time.
- Organize an introductory session on the human dimensions framework that must guide the planning process, explaining the paradigm shift that is taking place in terms of the ecosystems approach to management. If necessary, provide accessible materials on each of the key human dimensions, with examples of how that dimension might be applicable to the systems under discussion. Ideally a specific workshop on understanding the human dimensions of MPAs should be scheduled at this early stage in the planning.

### **What are suggested venues?**

To ensure all participants are comfortable and able to effectively generate important output during the Community PCRA Workshops; the following are suggested venues that should be used upon request and permission:

- Elementary/High Schools
- Barangay Halls
- Covered Gyms/Basket Ball Courts
- Municipal Hall Conference Rooms
- Theaters
- Churches
- Community Centers
- Marine Protected Area Guard Houses

### **What should venues generally be equipped with?**

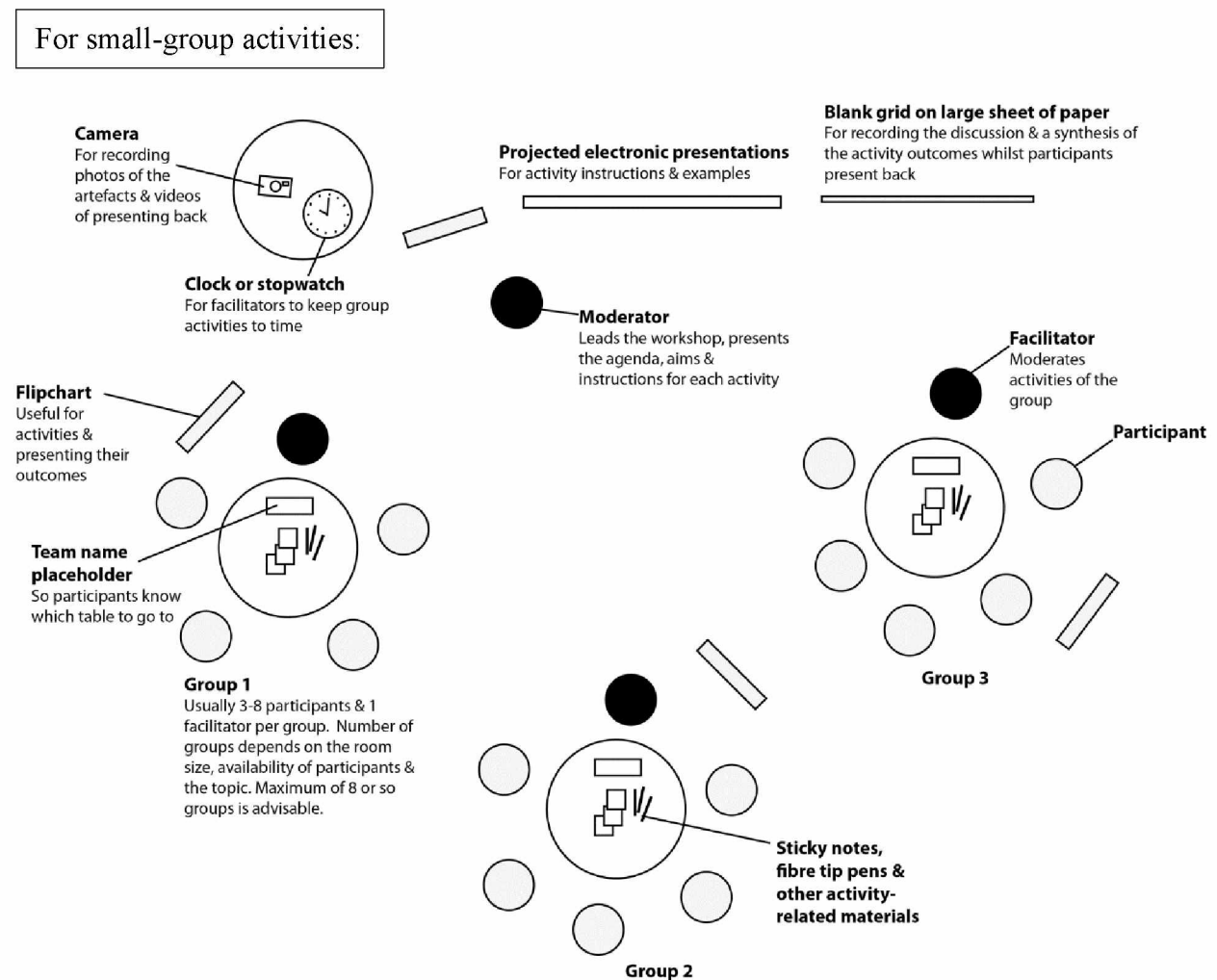
To successfully implement all activities needed to generate output from participants that will be used for management planning; the following are suggested features that should be present in venues:

- Electrical outlets
- Fans

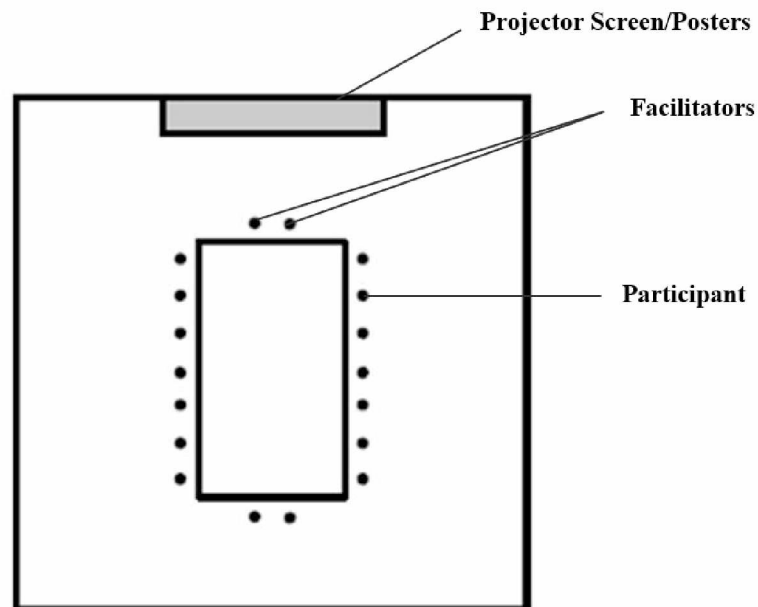
- Overhead cover
- Place to hang posters and diagrams
- Place to set up or hang a projector screen
- Seats for all participants
- Tables
- Nearby toilettes
- Situated in a relatively quiet location

## How should venues be arranged to foster comfort, creative thinking and effective output?

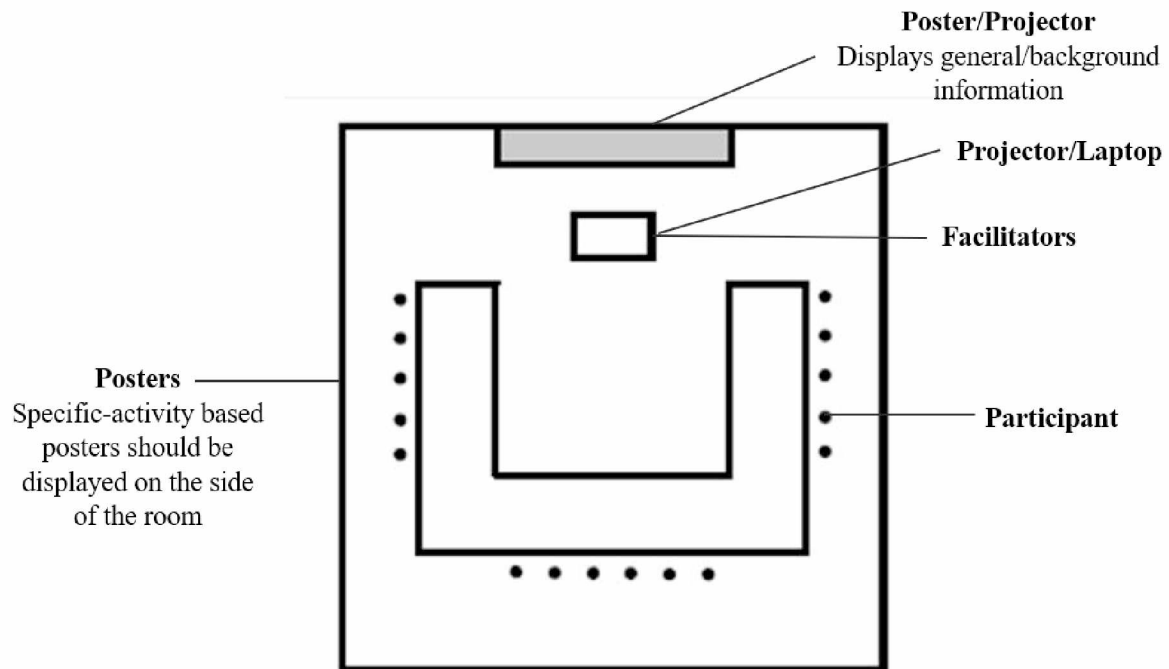
The following are suggested venue arrangements for activities taking place during the Community PCRA Workshop:



For large-group discussions and presentations:



For large-group discussions and presentations:





### **STEP 3. Carry out the Community Participatory Coastal Resource Assessment Workshop.**

**Goal:** To implement an effective Community PCRA Workshop in efforts to generate output that will be used for management planning of sustainable livelihoods and community-based marine protected areas.

#### **What is the output that is needed to be generated?**

In order to successfully plan and implement sustainable livelihood programs, the following information needs to be collected:

- Information surrounding the human dimensions of the target community(s) or area
- Overall economic activities undertaken by households in the target community(s) or area
- Main Sources of Income or livelihoods by employment, businesses, and agriculture & livestock
- Percentage of non-fishing/gleaning income generating activities by sector and industry classification
- No of persons operating local enterprises and percentage distribution of enterprises by sector, sex, registration status, and location
- The nature of interaction, support and exchange by organizations that deal with individual and group enterprises
- Markets for the various goods and services supplied by household
- Skills, labor, sources and assets held or used by the households in undertaking non-pastoral income sources

#### **Key principles to maintain during the Community PCRA Workshop:**

- Maintain cultural relevance and respect by beginning with a prayer or ceremonial tradition. introducing and thanking all attendees and allowing for key note speeches of officials and representatives at the beginning and close of each workshop day.
- Allow for participants to establish a set of agreed upon core values and ground rules prior to the workshop.
- Visual-based participatory techniques are important tools for enhancing understanding of issues/problems and producing output.
- Diagramming can serve as a means of presenting information visually to illustrate spatial and time-based information.
- Speak slowly, clearly and in the local language/dialect to ensure the understanding of all participants.
- Allow for two-way communication, asking of questions, and the sharing of ideas and knowledges.
- Ensure that all participants have an equal opportunity to speak, participate and share their perspectives in workshop activities.

## **What are suggested activities to carry out during the Community PCRA Workshop?**

The following describes suggested or example activities to implement during the workshop to generate essential output used in planning successful CBMPAs and sustainable livelihoods. Depending on the needs of the community(s), these suggested activities may or may not be useful in helping plan livelihood programs and projects.

The idea is to design activities that will produce information surrounding human dimensions and assets that are critical in understanding for developing a sustainable livelihood and CBMPA management plan.

### **Suggested activities:**

#### **A. Education/Background Information**

How to implement this activity:

1. Prepare a Power Point Presentation or posters to educate participants on the following information: coastal resources, coastal and marine ecology, community-based marine protected areas, management planning process, and sustainable livelihoods
2. Present Power Point presentation or posters to the participants
3. Incorporate questions and small activity into presentation to gauge and ensure participant understanding

Intended outputs produced:

- The participants of the workshop will be well informed on the following topics: coastal and marine ecology, community-based marine protected areas, management planning process, and sustainable livelihoods.
- Participants will feel more comfortable and confident in their knowledge to further carry out other activities and generate important information.
- Participants are made to feel like their attendance is important and critical in the planning process for sustainable livelihoods and CBMPAs

#### **B. Community Mapping:**

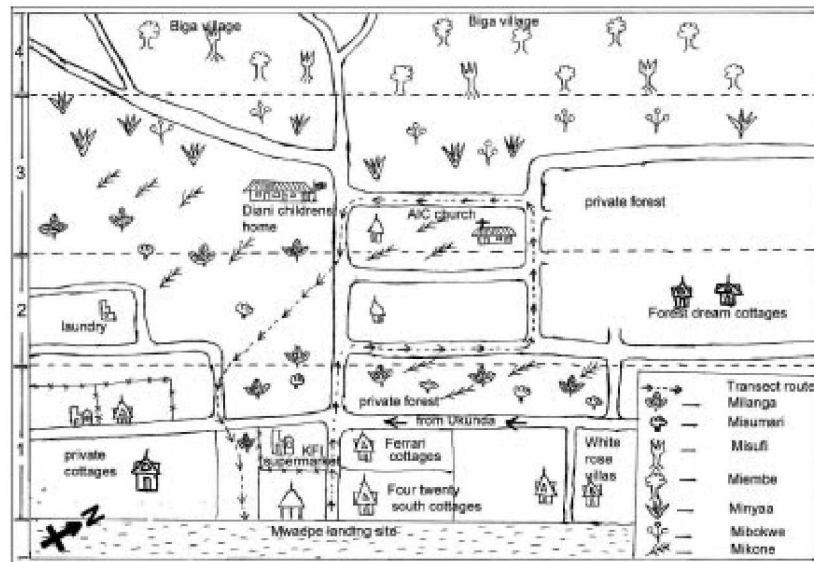
How to implement this activity:

1. Prepare and provide the asset-baseline map(s) prepared in pre-workshop planning process.
2. In small groups have the participants go about mapping and confirming the location of the following features: general information/features, critical habitats, natural capitals, economic capitals, human capitals, physical capitals, uses, livelihood opportunities, and issues/problems.
3. In small, rotating groups have the participants go about selecting the desired location of a marine protected area and on a separate piece of paper providing written reasoning for their selected location of the marine protected area.

Intended outputs produced:

- Detailed information and locations surrounding the community's assets including: human capitals, natural capitals, physical capitals, and economic capitals.
- General locations that are proposed by participants to place the community-based marine protected area and reasoning in regards to those selected locations.
- Identification and location of current issues and problems within the local community.
- Identification and location of current opportunities for livelihood programs and projects.

Example:



*Deguit et al. 2004*

### C. Calendar Diagram

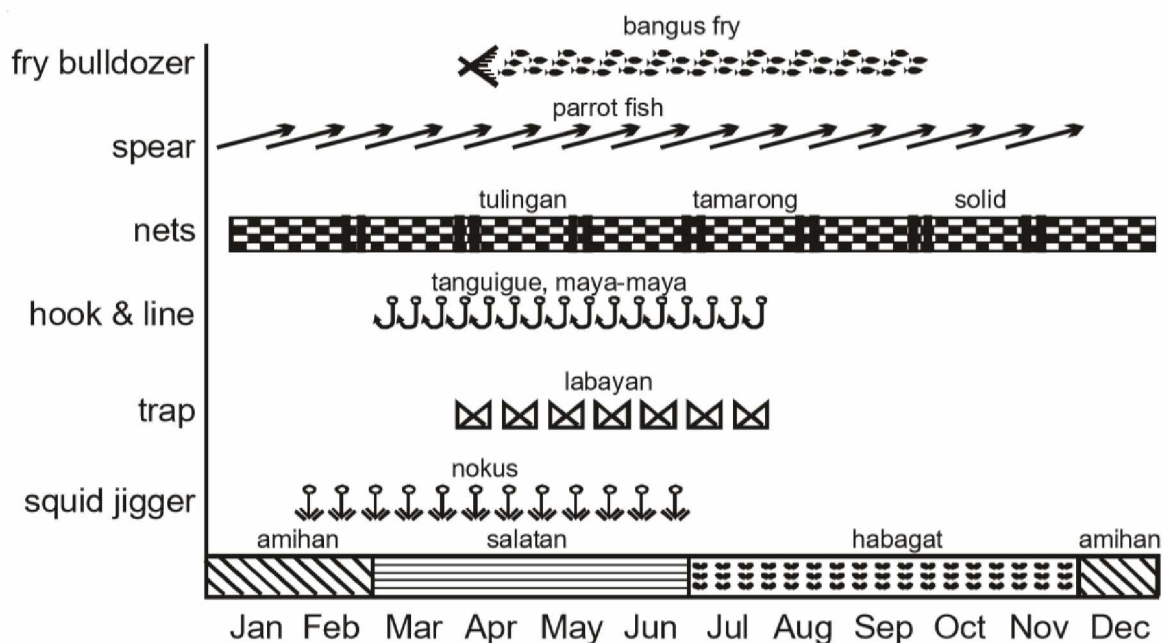
How to implement this activity:

1. Prepare a large poster with a graph containing gear types labeled on y-axis and months in a given calendar year on the x-axis.
2. In small-rotating groups, have participants graph gear types used during specific months and the species of aquatic organisms are caught with each gear type through the use of colored paper, markers and sticky notes.
3. Ensure that the graph produced is agreed upon all participants in a consensus or provide multiple graph posters if there are significant differences.

Intended outputs produced:

- Understanding of the seasonal trends of gear types and species of aquatic organisms caught during a calendar year.
- Provides an opportunity for participants to share experience-based information.
- Provides biological insight on the species of fish that are located in the community's coastal waters.

Example:



*Deguit et al. 2004*

#### D. Trend Diagram

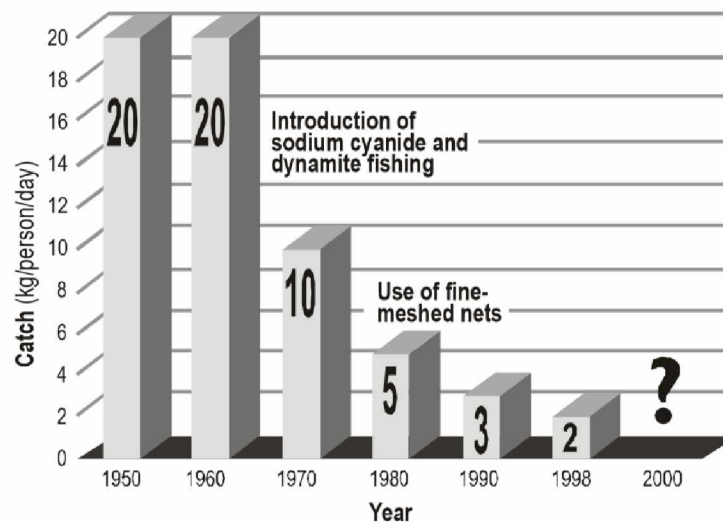
How to implement this activity:

1. Prepare a large poster with a graph containing catch (kg/fish/day) labeled on the y-axis and years starting from 1990's labeled on the x-axis.
2. In small-rotating groups, have participants graph the historical trends of their fish catch through the use of colored sticky notes, paper or markers.
3. On small pieces of paper, have the participants document major events on the graph including: oil spills, blast fishing events, introduction of fine-mesh nets, and the establishment of alternative livelihood programs such as eco-tourism.
4. Ensure that the graph produced is agreed upon all participants in a consensus or provide multiple graph posters if there are significant differences.

Intended outputs produced:

- Understanding of the historical trends in fish catch of local community members and potential issues or problems associated with the trends.
- Provides an opportunity for participants to share experience-based information.
- Generates information surrounding historical-past events that may have had potential impacts on the overall fish catch of community members.

Example:



*Deguit et al. 2004*

#### E. Livelihood Transect Diagram

How to implement this activity:

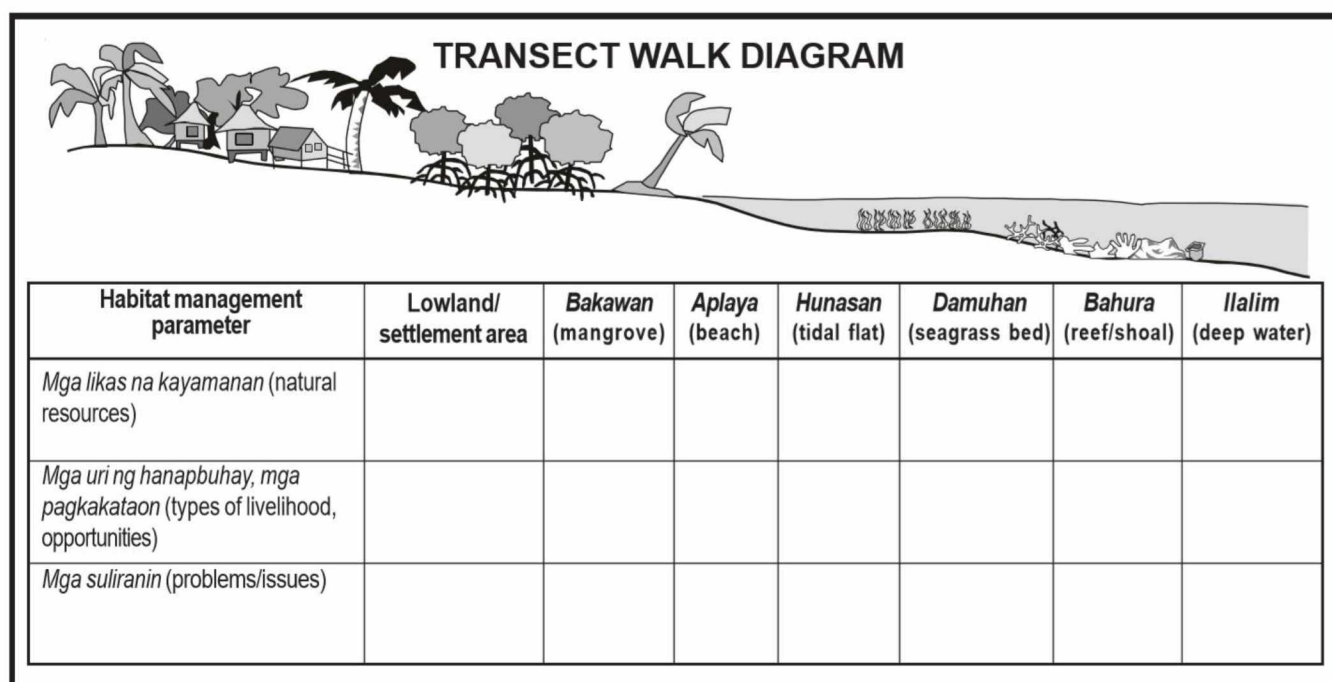
1. Prepare a poster that has a diagram of a cross section of the major components of a coastal environment applicable to that of the Philippines located at the top. The major components to be displayed include: settlement areas, mangroves, beaches, tidal flats, seagrass beds, coral reefs/shoals, and deep-water areas.
2. On the poster below the diagram of the cross section of the major components, create a table that identifies natural resources, types of livelihoods and opportunities, and problems/issues associated with each component of the coastal environment.
3. Ensure the participants understand and become familiar with each of the components of the coastal environment.

Intended outputs produced:

- Generates information surrounding available assets located in the community's components of their coastal environment.
- Provides an opportunity for participants to generate possible ideas for sustainable livelihood programs and projects given the natural assets within each of the coastal environment components.
- Provides an opportunity for participants to identify problems and issues associated with each of the coastal environment components.



Example:



*Deguit et al. 2004*

## F. SWOT Community Analysis

How to implement this activity:

1. Prepare a poster containing a large table with four sections entitled strengths, weaknesses, opportunities, and threats.
2. In small-rotating groups, have participants provide information surrounding strengths, weaknesses, opportunities, and threats of their associated community using sticky notes and sheets of paper.
3. Ensure that all participants have an equitable opportunity to provide responses and perspectives.

Intended outputs produced:

- Provides an opportunity for participants to voice their perspectives surrounding strengths, weaknesses, opportunities, and threats.
- Identifies possible sources of challenges and issues in implementing management planning for programs and services.

Example:

**SWOT analysis template**

<b>Strengths</b>	<b>Weaknesses</b>
<b>Opportunities</b>	<b>Threats</b>

*Deguit et al. 2004*

#### G. Community Priorities Brainstorming

How to implement this activity:

1. Prepare a blank poster entitled community priorities. Provide instruction to participants to identify the needs of the community, family-based priorities, economic priorities, development priorities, and ecological-based priorities.
2. Ensure the participants understand the objective of the activity and feel comfortable providing personal and overall community-wide priorities.
3. In small-rotating groups, have participants share their output using sticky note or sheets of paper that will be taped to the poster by the facilitator. Ensure that responses are confidential.

Intended outputs produced:

- Provides contextual information in regards to the wants, desires, and priorities of the differing stakeholder and user groups participating in the Community PCRA Workshop.
- Provides insight to coastal resource managers what programs and projects should be prioritized to address the needs and desires of community members.
- Generates contextual information that can be used to set an overall direction and goals for implementing sustainable livelihood programs.

**The following is an example schedule for a Community PCRA Workshop:**

*Note: Schedules and activities implemented in the workshops will differ among communities based on needs and characteristics.*

**Day 1 – Community Participatory Coastal Resource Assessment Workshop**

8:00am	Registration
8:30am	Opening Prayer/Introduction of Participants/Opening Speeches of Officials
9:00am	Education/Background Introduction Presentation
10:30am	Break/Snacks
10:45am	Community Mapping Activity
12:00pm	Lunch
1:30pm	Calendar Diagram Activity
3:00pm	Trend Diagram Activity
4:30pm:	Presentation of Output/Closing Remarks
5:00pm:	Close of Day 1 Community PCRA Workshop

**Day 2 – Community Participatory Coastal Resource Assessment Workshop**

8:00am	Registration
8:30am	Opening Prayer/Introduction of Participants/Opening Speeches of Officials
9:00am	Livelihood Transect Diagram
10:30am	Snacks
10:45am	SWOT Analysis Activity
12:00pm	Lunch
1:30pm	Community Priorities Activity
3:00pm	Presentation of Output/Applications to Management Planning
4:30pm	Awarding of Certificates/Closing Remarks/Group Photo
5:00pm	Close of Day 2 Community PCRA Workshop



#### **STEP 4: Analyze and organize output generated by the Community Participatory Coastal Resource Assessment.**

**Goal:** To prepare and organize output generated from the Community PCRA Workshop in an effective manner to be used in preparing the management plan and ordinance for the CBMPA and sustainable livelihood programs.

##### **What is data analysis?**

Data analysis involves searching for patterns in data and generating ideas to explain those patterns.

		<u>DATA</u>	
		Qualitative	Quantitative
<u>ANALYSIS</u>	Qualitative	Interpretive texts; hermeneutics; grounded theory	Interpretation of quantitative results
	Quantitative	Turning words into numbers; classic context analysis; word counts; free lists; pile sorts	Statistics; mathematical analysis of variance

##### **Who should analyze and organize the output generated?**

The data will be most effectively analyzed and organized by the facilitators, data collectors, moderators and other personnel that facilitated in the process of generating the data collected. Due to their direct field work and interaction with participants in the community surveys and workshops, the facilitators and data collectors are able to provide valuable supporting information to further interpret and draw conclusions from the output produced.

##### **What tools can be used to analyze the qualitative data:**

Depending on the available resources and experience within the community, there are multiple tools that can be used to analyze the qualitative data generated surrounding human dimensions and assets. Open source software for data analysis is suggested to analyze data.

##### **How should data be organized to be incorporated into a management plan?**

The idea is to interpret, summarize and organize the data in an efficient way so that its is ready to be used by organized management boards/committees and task forces to create the community-

based marine protected area management plan and ordinance to incorporate a framework for sustainable livelihood programs in the community.

### **What needs to be included in the management plan and ordinance?**

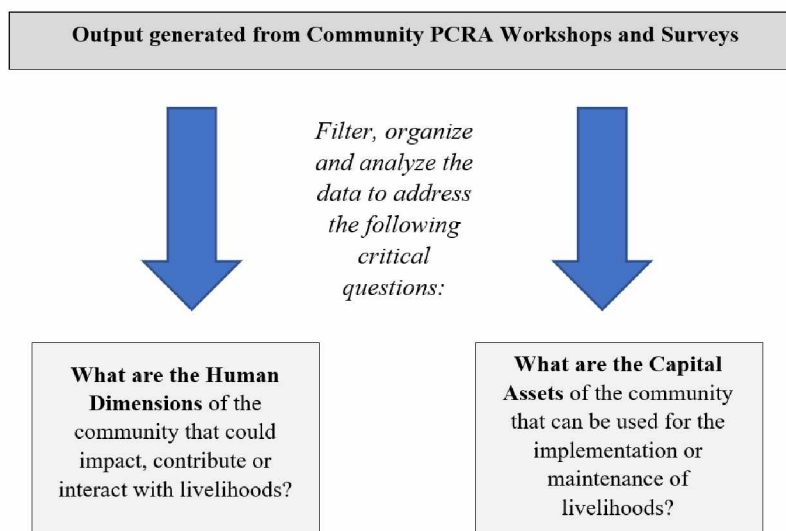
The following are aspects to be included in the CBMPA management plan:

1. Introduction
2. Profile of the CBMPA site or general area
3. Goals and objectives for the CBMPA management
4. Management interventions
5. Sustainable livelihoods framework
6. Implementing structures
7. Monitoring and evaluation
8. Annexes

### **What are the ways to organize and analyze the data?**

There many ways to organize and analyze output or the raw data produced by Community PCRA Workshops. The key is to extract critical information surrounding human dimensions and assets that are needed to be considered when drafting a plan for community livelihoods that is sustainable and provides for the needs of all stakeholders.

#### **Basic Idea:**



The following are a few suggested ways to organize and analyze output generated. Depending on the needs of the community(s), these suggested methods may or may not be useful in helping plan livelihood programs and projects.

**Example 1: Create a human dimensions table.**

<b>Human Dimension:</b>	<b>Components of Human Dimensions:</b>	<b>How should this be considered when planning for sustainable livelihoods?</b>
Ex. Social Aspect	Ex. Women of the community make traditional crafts in the form of weaved baskets, mats, hats and other items. There is currently not a local enterprise for this	Ex. This social aspect of a women cohort of skilled weavers provides a possible livelihood opportunity to sell and market their items to offset losses from not fishing within the CBMPA.

**Example 2: Create a summary table of the SWOT Analysis activity.**

	<b>Opportunities</b> (external, positive)	<b>Threats</b> (external, negative)
<b>Strengths</b> (internal, positive)	<b>Strength-Opportunity strategies</b>  Which of the company's strengths can be used to maximize the opportunities you identified?	<b>Strength-Threats strategies</b>  How can you use the company's strengths to minimize the threats you identified?
<b>Weaknesses</b> (internal, negative)	<b>Weakness-Opportunity strategies</b>  What action(s) can you take to minimize the company's weaknesses using the opportunities you identified?	<b>Weakness-Threats strategies</b>  How can you minimize the company's weaknesses to avoid the threats you identified?

**Example 3: Create a summarized table of the key priorities/values/needs identified by the community.**

<b>Type of Priority:</b>	<b>Implications to sustainable livelihoods:</b>
Ex. Maintaining community access to subsistence-harvest of food and resources.  (Resource-base priority)	Ex. Ensure subsistence livelihoods are maintained through enhancing and supporting agricultural, livestock and aquaculture programs.

**Example 4. Create a summarized table of assets.**

<b>Type of assets:</b>	<b>Use or implications to sustainable livelihoods:</b>
Ex. Natural Capital: Healthy and vibrant coral reef located in the core zone of the CBMPA.	Ex. Coral reefs provide opportunities to implement community-based snorkel and dive tourism activities to generate funds for livelihood support. To offset possible losses from not fishing in the CBMPA, fishermen could provide boat and snorkel/dive gear rentals for tourists to generate income.

## **PART 2:**

### **PHASE III. PREPARATION OF MANAGEMENT PLANS AND ORDINANCES**

#### **What is a management plan and why is it important?**

Management plans outline the process and procedures that will be executed to reach goals and objectives of a community-based marine protected area.

To ensure the success of a community-based marine protected area to achieve set goals and objectives through community support, the CBMPA management plan must include a planning framework for sustainable livelihoods.

#### **What is an ordinance and why is it important?**

Ordinances in the Philippines serve as written documents of law that are approved by a town council known as the Sangguniang Bayan Council. These ordinances provide a system of rules that are created and enforced for the establishment of a community-based marine protected area.

Livelihood management planning should be incorporated into the framework of CBMPA ordinances to mandate the maintenance and sustainability of the community's livelihood by law. As a result, this will provide for improved community support of the CBMPA which will result in its improved overall success.

## **Example outline of a community-based marine protected area management plan:**

Chapter 1: Introduction (rational, scope of plan, legal basis, overall goal, etc.)

Chapter 2: Profile of the CBMPA site or general area

A. General information

1. Location (technical description, size, map, etc.)
2. Facilities (physical structures present in the area)
3. Current uses/activities in the area

B. Biophysical condition

1. Habitat condition (condition of coral reefs, seagrasses, mangroves, etc.)
2. Resource and resource map (site map within larger municipal/city jurisdiction)

C. Socioeconomic condition

1. Immediate community (all potential beneficiaries or users of the area)
2. Issues and concerns
3. Resource value estimates

Chapter 3: Goals and objectives for CBMPA management

Chapter 4: Management interventions

A. Habitat management

B. Management zones – spatial allocations and regulations

C. Constituency building – community organizing and education

D. Compliance and enforcement

E. Shoreline or foreshore management

F. Solid waste management

G. Others

Chapter 5: Sustainable livelihoods framework

A. Community-based income generating programs and projects

1. Users fees
2. Eco-tourism programs
3. Supplemented agriculture/aquaculture programs
4. Others

Chapter 6: Implementing structures

A. Management board, committee or council (members and positions)

B. Duties and responsibilities (specific roles and functions)

C. Organizational chart

D. Budget for each management intervention and livelihood program

Chapter 7: Monitoring and evaluation

A. What will be monitored (reef substrate cover, fish stock, community livelihoods and socioeconomics, etc.)

B. Methods to be used

C. Institutional and scheduling arrangements (meeting times, roles and duties)

D. Budgetary and equipment requirements

E. Reporting and feedback mechanisms (schedules, formats, etc.)

Annexes

A. Ordinance



### **Example of a suggested outline of a CBMPA Municipal Ordinance:**

- Section 1. *Declaration of Policy.* States the municipal policy on which the ordinance is based.
- Section 2. *Definition of Terms.* Defines the terms and phrases used in the ordinance, including the specific boundaries of the sanctuaries and the activities allowed within these boundaries. The boundaries of the sanctuary may also be contained in a separate section.
- Section 3. *Prohibitions.* States the specific activities that are not allowed in the sanctuary. This section is also sometimes incorporated in the “Boundaries of the Marine Sanctuary” section.
- Section 4. *Penalties.* Specifies fines and penalties for the various violations of the rules of the sanctuary.
- Section 5. *Exemptions.* Enumerates those activities that, though expressly prohibited by law, may be allowed for special purposes and under special circumstances. These commonly include catching fish and extracting coral sample for research or environmentally-sound ecotourism related activities.
- Section 6. *Establishment of the Management Board/Committee.* Declares the establishment of the CBMPA management board that will oversee the policies, planning and overall management of the MPA. Describes the roles, functions and duties of the management board.
- Section 7. *Livelihood Framework.* Describes the programs to be established for the maintenance and sustainability of the community’s livelihoods. Outlines specific projects, task forces and management processes pertaining to livelihood programs.

### **STEP 1. Establish a CBMPA management board, committee or council.**

The most essential step before drafting the management plan and ordinance is the formation of a local committee that is directly interested and committed to planning, implementation, and management of the proposed CBMPA.

The management committee should consist of representatives of all stakeholder and user groups associated with the CBMPA. In some cases, the multisectoral committee or board is chaired by the municipal mayor and can be established through a municipal ordinance.

### **Who should serve on the CBMPA management board?**

The following is a list of suggested representatives to serve on the CBMPA management board:

- Municipal Mayor
- Sangguniang Bayan Chairman, Committee on Agriculture and Fisheries
- Sangguniang Bayan Chairman, Committee on Environment





## **STEP 2. Carry out CBMPA management board planning meetings.**

After the management board is identified, invite all members to attend a CBMPA management planning meeting. Invitation methods previously discussed should be utilized to ensure all needed members attend the management board meeting.

### **Recall:**

Make use of PHASE II Steps 1 and 2 to prepare for the CBMPA management board meeting and to ensure all members attend and that the meeting is carried out in a manner that effectively produces a CBMPA management plan and ordinance.

### **What are the intended goals of the board meeting?**

The goals of the management meeting are as follows:

- Identify the roles, duties and responsibilities of each management board member.
- Create an effective CBMPA management plan and ordinance to include sustainable livelihoods.
- Create task forces and sub-committees to oversee management interventions, sustainable livelihoods and monitoring and evaluation of the CBMPA.

### **What should be carried out at the start of the meeting?**

Prior to beginning the process of drafting the CBMPA management plan and ordinance, facilitators should lead a process to establish the boards ground rules, values and decision-making procedures.

The board should come to a consensus on the following:

- How will the board carry out the voting process?
- What are the roles and positions of each member serving on the board?
- What are the values and priorities of the management board?
- What are the goals to be achieved during the board meetings?

### **What are the roles of each board member?**

When considering the roles and duties of each member, it is important to consider the existing obligations and schedules of each member and plan accordingly to ensure they will be able to fulfill their duties and functions effectively on the CBMPA management board.

<b>Suggested Board Member Position:</b>	<b>Suggested Duties:</b>
Chairman	<ul style="list-style-type: none"> <li>- Preside during conduct of regular and special meetings</li> <li>- Approves minutes</li> <li>- Sign documents when necessary for programs and projects</li> <li>- Shall represent the CBMPA management board in external affairs</li> </ul>
Vice-chairman/Co-Chairman	<ul style="list-style-type: none"> <li>- In the absence of the Chairman, shall preside during conduct of regular and special meetings</li> <li>- In the absence of the Chairman, shall represent the CBMPA management board when the need arises in external affairs</li> </ul>
Secretary	<ul style="list-style-type: none"> <li>- Photo documentation</li> <li>- Record and read minutes of meetings</li> <li>- Attendance</li> <li>- Sends Letters of Communications</li> <li>- Keeps the records and documents of the CBMPA management board</li> <li>- Lead or facilitate the referendums if necessary</li> <li>- Facilitate and finalize resolutions</li> </ul>
Treasurer	<ul style="list-style-type: none"> <li>- Manages, oversees and keeps record of the CBMPA budget</li> <li>- Facilitates the acquiring of funds for programs and projects of the CBMPA</li> </ul>
Advisory Board Member(s)	<ul style="list-style-type: none"> <li>- Provide support and advice to the CBMPA management board surrounding projects and programs</li> <li>- Facilitates the passing of legislation, laws and funding requests proposed by the CBMPA management board</li> <li>- Approves and monitors all projects and programming of the Marine Protected Areas/Reserves/Sanctuaries</li> <li>- Coordinates efforts of all committees</li> </ul>
Regular Board Members	<ul style="list-style-type: none"> <li>- Create and re-establish administrative and law-enforcement structures such as a Bantay Dagat Team to protect the</li> </ul>

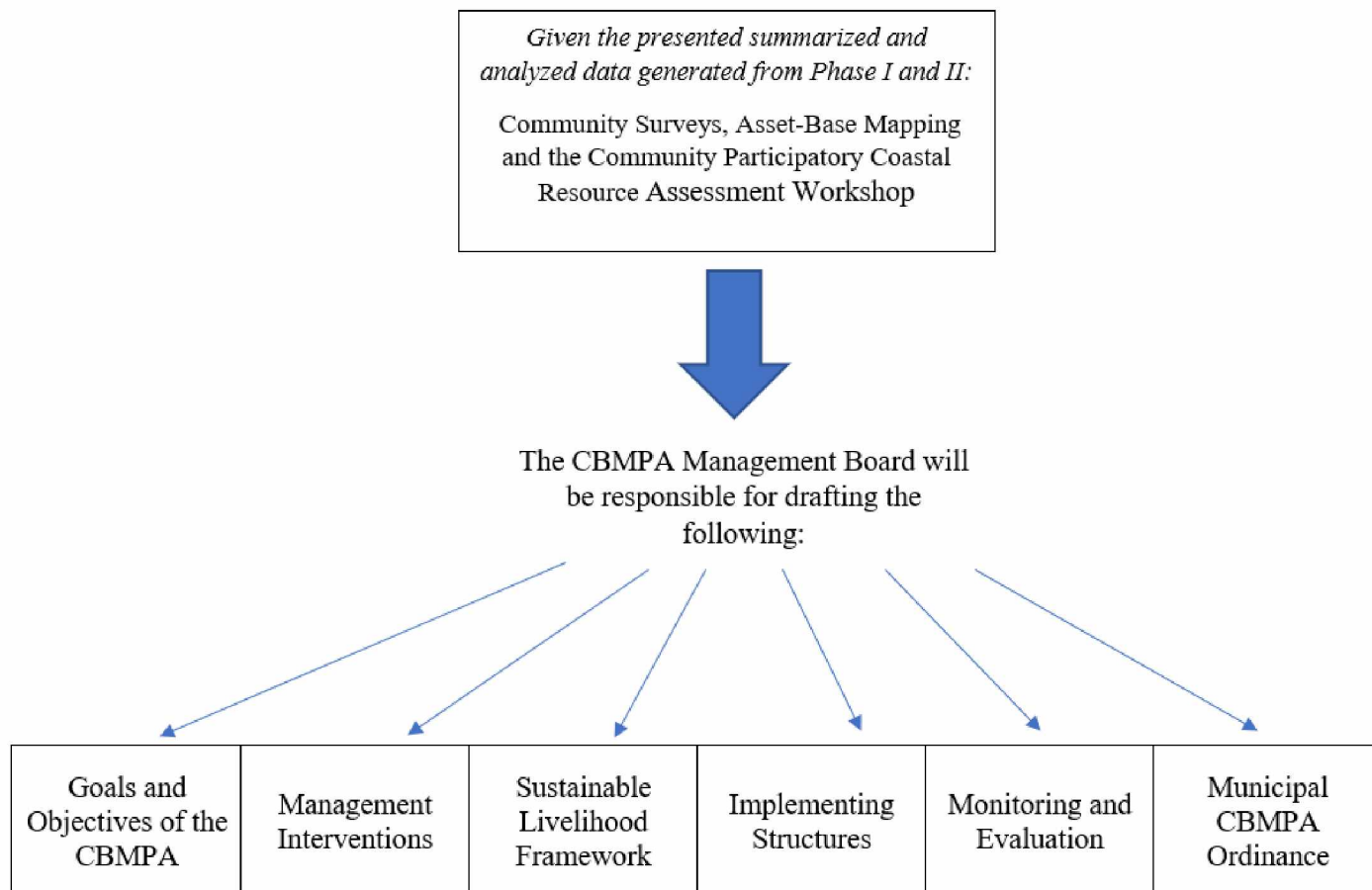
	<p>Marine Protected Areas/Reserves/Sanctuaries from encroachment and illegal fishing activities</p> <ul style="list-style-type: none"> <li>- Source funds for the implementation of Marine Protected Areas/Reserves/Sanctuaries programs and projects</li> <li>- Oversees and maintains sustainable livelihood programs and projects associated with the CBMPA</li> <li>- Coordinate with the Municipality to establish and implement ordinances and amendments</li> <li>- In collaboration with a designated prosecutor, file complaints with and perform such other functions necessary for the attainment of the goals and purposes for the establishment of Marine Protected Areas/Reserves/Sanctuaries</li> <li>- Oversees, manages and maintains the Marine Reserve Guard Houses and Centers</li> <li>- Manages and oversees all functions and activities of the CBMPA task force committees and working groups</li> </ul>
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### **STEP 3. Draft the CBMPA management plan and ordinance.**

#### **How should the management plan be written?**

The CBMPA management board will go about drafting the language and main points to be included in the CBMPA marine protected area and management plan through the consideration and analysis of the summarized output that was generated in Part 1 of the CBMPA planning process.

## What are the main components the management board will be responsible for drafting?



The following is an example of a suggested meeting agenda for the drafting of the management plan and ordinance:

### **What needs to be considered in each of the components to ensure the implementation of sustainable livelihoods?**

There is currently extensive literature and information surrounding the content to be included in each component of CBMPA management plans and ordinance. This guide provides recommendations for incorporating sustainable livelihoods into each of the components.

#### *Goals and Objectives components:*

Ensure that at least one of the overall goals outlined in the CBMPA management plan includes the establishment of programs, projects or planning framework for the maintenance and implementation sustainable livelihoods for community members.

Example Goal: By 2020, establish a snorkel rental center that is co-managed by local community members and the CBMPA management board to generate funds that will be equally distributed to among community members involved in the center's operations and the CBMPA budget.

Ensure that each goal is equipped with for following to ensure that it is achieved:

- Associated objectives and strategies that outline the steps that need to be carried out to ensure the goal is achieved.
- A designated working group or task force that is responsible for the implementation of the goal's objectives and strategies.
- A realistic and obtainable budget outlining the costs, resources and sources of funding needed to implement the steps for each goal.
- An achievable timeline or schedule for when objectives and strategies are to be implemented.

*Management Interventions components:*

Management interventions should include planning for the maintenance of sustainable livelihoods for the associated community.

Ensure that management interventions consider the human dimensions and assets of the community.

Consider the following:

- How will the specified zone impact cultural, social and economic practices of the community?
- What are the social dimensions and social capitals already in place that can be used to implement constituency building?
- What are the cultural, social, economic and political impacts the implementation of compliance and enforcement interventions will have on the community?
- Once the final draft of the CBMPA management plan and ordinance is approved by all associated stakeholders and user groups; implement an information, education and communication program that ensures neighboring municipalities, upland stakeholders and all private sectors are aware of the management framework and regulations of the established CBMPA.
- What are the cultural, social, economic and political impacts the shoreline management interventions will have on the community?
- How will the solid waste management programs consider the human dimensional aspects of the community and make use of existing assets?

*Sustainable Livelihood Framework:*

The most critical component in ensuring the success of the community-based marine protected area through community support and compliance, the sustainable livelihoods framework should be effectively designed to address the community's human dimensional aspects and make use of existing assets.

Each proposed sustainable livelihood program and project outlined in the management plan should include the following:

- Who (i.e. community leader, people's organization, task force committee) will be responsible for the implementation of the program and project?

- What are the goals and objectives of the specific livelihood program or project?
- What is the budget and timeline/schedule of the specific livelihood program or project?
- How will the funds generated be distributed in an equitable and culturally appropriate manner?
- How will the livelihood program or project be sustained over time?

Establish a sustainable livelihood program that is the following:

1. Economically sustainable; which means generating prosperity at different levels of society and addressing the cost effectiveness of all economic activity.
2. Socially sustainable; which means respecting human rights and equal opportunities for all in society.
3. Environmentally sustainable; which means conserving and managing resources, especially those that are not renewable or are precious in terms of life support.

*Special consideration for ecotourism livelihood programs and projects:*

- Ensure that all ecotourism programs and practices are environmentally sound; conduct environmental impact assessments.
- Ensure that all funds generated from the ecotourism practices are equally distributed among private sectors and general community members involved.
- Ensure that the eco-tourism related programs and opportunities can be sustained over time.

**STEP 4. Establish subcommittees and task forces for each of the management components for the CBMPA.**

The following are suggested subcommittees and task forces to establish to implement the management components outlined in the CBMPA management plan and ordinance:

<b>Suggested Sub-Committee/Task Force:</b>	<b>Suggested Duties:</b>
Enforcement	<ul style="list-style-type: none"> <li>- Patrolling and monitoring the Marine Reserves for illegal encroachment and fishing activities</li> <li>- Managing finances and the physical structure of the Municipal Patrol Pump Boat</li> <li>- Coordinating with the CBMPA management board to implement improvements in patrols and trainings</li> <li>- In charge of collecting fines</li> <li>- Manage and up-keep the Marine Reserve Guard Houses</li> </ul>

	<ul style="list-style-type: none"> <li>- Implementing the laws, rules and regulations within the Marine Reserve, and filing cases of violations when necessary</li> </ul>
Legislative	<ul style="list-style-type: none"> <li>- In coordination with the LGU, recommend legislation and amendments surrounding the Marine Protected Areas/Reserves/Sanctuaries</li> <li>- Update and assess existing legislation already in place annually</li> <li>- Assist the LGUs in the formulation of policies, rules and regulations within the Marine Reserve</li> <li>- Implement and monitor violations within the Marine Reserve in coordination with the Law Enforcement Committee</li> </ul>
Livelihoods	<ul style="list-style-type: none"> <li>- In coordination with LGUs, NGOs, and POs to create and implement proposed sustainable livelihood programs and projects in communities with associated CBMPAs</li> <li>- Implement the User Fee systems and in coordination with the LGU, establish User Fee Ordinances</li> <li>- Implement eco-tourism programs and projects in coordination with LGUs and private sectors</li> <li>- Creation of project proposals and access funding support</li> </ul>
Rehabilitation and Conservation	<ul style="list-style-type: none"> <li>- Manage and oversee all functions of the wildlife rescue center and marine mammal and reptile stranding activities</li> <li>- Implement coral gardening projects in coordination with the LGU</li> </ul>

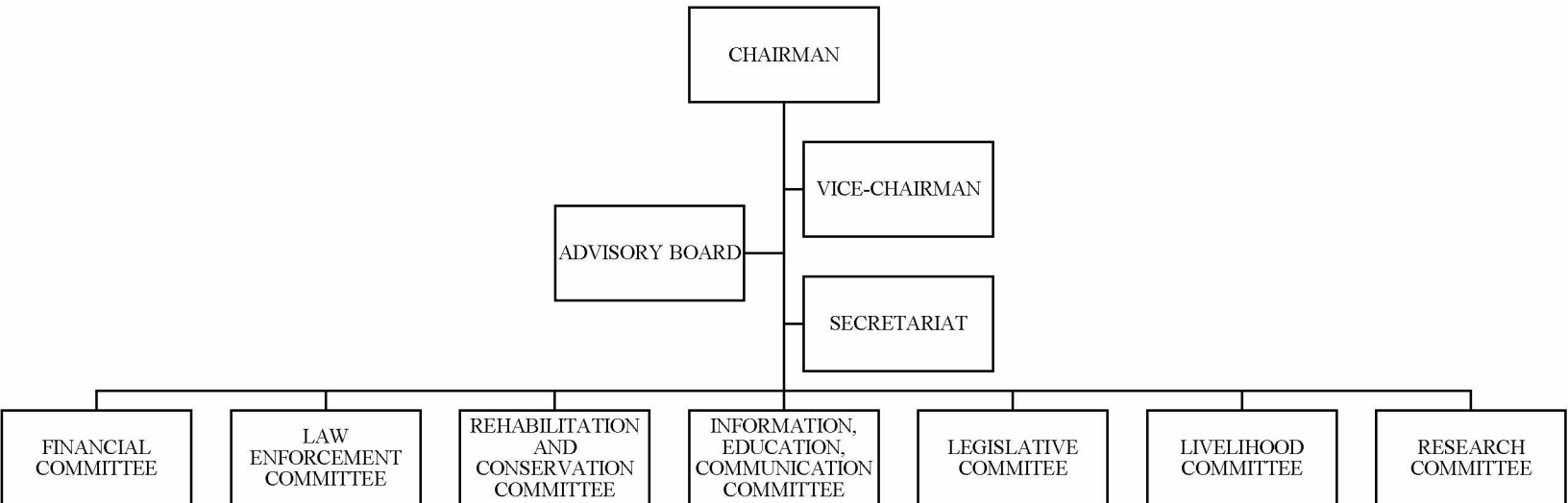
	<ul style="list-style-type: none"> <li>- Implement mangrove planting projects and programs in coordination with DepEd, NGOs, and the LGU</li> <li>- Manage and oversee the implementation of anchor and demarcation buoys</li> <li>- Implement rehabilitation and conservation trainings for community members, PO's and members of the CBMPA management board in coordination with LGUs and NGOs</li> <li>- Implement solid waste management programming and projects for pollution control in the CBMPA</li> <li>- Coordinate with LGUs, NGAs, NGOs, academes and other cause-oriented groups to implement coastal clean-ups</li> </ul>
Information, Education and Communication	<ul style="list-style-type: none"> <li>- Coordinate with LGU's to implement and update signage such as billboards, posters, tarpaulins and reproduction of other informational materials regarding the CBMPA</li> <li>- Coordinate with LGU's, academes and Dep Ed to implement environmental education, solid waste management and coastal resource management education, with a focus on marine reserves for local schools and People's Organizations</li> <li>- Coordinate with LGUs to implement and create promotional and educational souvenirs, pamphlets, t-shirts, etc. to promote and educate the public about the CBMPA</li> <li>- Conduct information dissemination events for the sustainability of the CBMPA</li> </ul>
Financial	<ul style="list-style-type: none"> <li>- Ensure that all cash collections are deposited in accordance with the</li> </ul>



	<p>policies set by the CBMPA management board</p> <ul style="list-style-type: none"> <li>- Have custody of all funds, securities, and documentations relating to all assets and abilities income and expenditures</li> <li>- Monitor and review the financial management operations of the CBMPA management board subject to such limitations and control as maybe prescribed by the CBMPA management board</li> <li>- Maintain full and complete records of cash transactions</li> <li>- Maintain full and complete records of financial transactions</li> <li>- As the need arises maintain petty cash and daily cash position report and perform such other functions as maybe prescribed by the CBMPA management board</li> </ul>
Research	<ul style="list-style-type: none"> <li>- Coordinate with LGUs and the Academia to organize annual Participatory Coastal Resource Assessments and Monitoring Programs</li> <li>- Manage monitoring and research assessments conducted for the CBMPA by outside institutions</li> <li>- Coordinate with LGUs to implement monitoring and assessment trainings to community members of Barangays with CBMPAs</li> <li>- Coordinate with LGUs and the CBMPA management board to implement action plans as a result of monitoring results</li> <li>- Manage records of data and findings of research programs</li> </ul>

**Note:** Depending on needs of the community-based marine protected area; additional sub-committees or task forces may need to be implemented.

Example of a suggested CBMPA management board hierarchy system:



**STEP 5. Present the CBMPA management plan and ordinance to the community for feedback and review.**

After a draft of the CBMPA management plan and ordinance is created by the CBMPA management board, the management plan and ordinance must be presented to the greater community for feedback and review.

The idea is to present both documents in a summarized manner by presenting key points within each of the documents' components.

**What are ways to present the CBMPA management plan and ordinance to the community?**

Carry out a public hearing or forum through the following processes:

- Carry out PHASE II, steps 1 and 2 to prepare for the public hearing.
- Present key points of the CBMPA management plan and ordinance, especially components pertaining to community livelihoods through the use of a large projector screen or posters.
- Provide an opportunity for all participants of the public hearing to share feedback, edits and concerns through means of allowing group discussion after the presentation and through an anonymous manner. Provide half sheets to all participants to ensure they feel comfortable writing anonymously concerns they may have regarding the presented CBMPA management plan and ordinance.

After the CBMPA management plan and ordinance is presented to the community for feedback, the documents will be revised and edited by the facilitators to address any of the concerns that were raised. The final draft of the CBMPA management plan and ordinance will then be presented and approved by the CBMPA management board for implementation.

**STEP 6. Implement and monitor the CBMPA management plan and ordinance.**

The implementation of the CBMPA management plan will be carried out by the all stakeholder and user groups that have been involved in the planning and management process of the CBMPA.

Key principles to maintain in the implementation of CBMPA management plans and ordinances:

- Maintain timeline and deadlines to complete programs and projects.
- Stay within established budget to implement programs and projects.
- Maintain transparency and effective communication in regards to the processes taking place to implement programs and projects.
- Monitor and evaluate whether programs and projects implemented are effectively achieving set goals and objectives.
- Revise programs and projects as needed.
- Regularly seek feedback and perspectives from the local community in regards to the impacts of the implemented regulations, programs and projects.

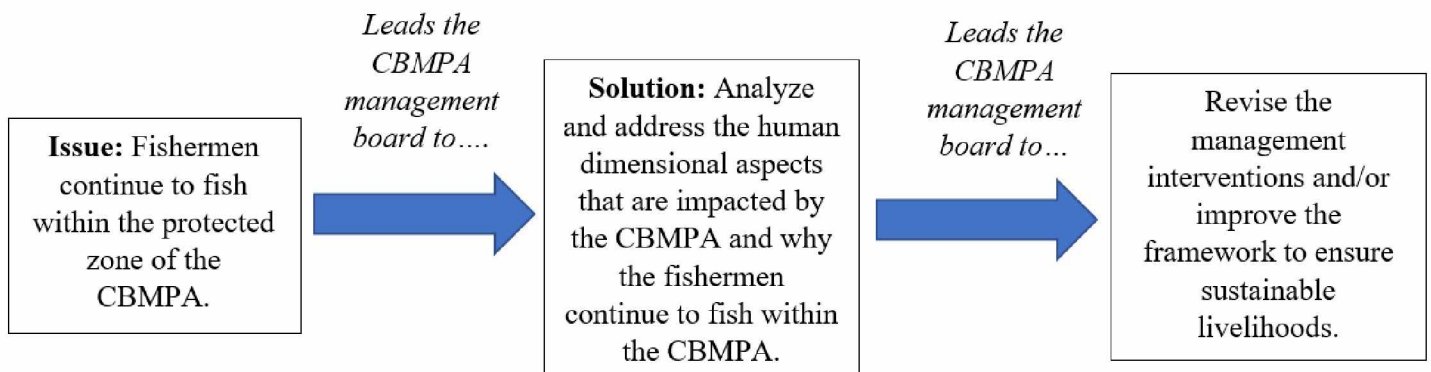
**Key Idea:** How are the regulations, programs and projects outlined in the management plans and ordinance impacting the livelihoods of the community and the state of the coastal resources?

**Example:** Historically, issues of illegal fishing practices within the core zone of the CBMPA are often addressed through the strengthening of enforcement. However, this avoids addressing the root or cause of the issue as to why illegal fishing practices are continuing.

Historical framework for addressing illegal fishing:



Suggested framework for addressing illegal fishing:



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